# 2010 GLOBAL MARITIME INFORMATION SHARING SYMPOSIUM

## "Charting the Course for MDA: Partnering with Industry"

### Baltimore, MD

### 14 – 16 September 2010

### Tuesday, September 14, 2010

**CANUS Interagency Maritime Domain Awareness Forum**
- CAPT Kurt Salchert, USN, Canadian Forces, Chief, NORAD Maritime Division

**Working to Make Tanker Terminals Safer**
- CAPT John Hill, Heidmar Inc.

**Port Security Perspective**
- Mr. Bud Frank, Director of Security, Maryland Port Administration

**"International Maritime Safety & Security Exchange:  A Promising Business Model for Global Maritime Safety & Security**", ADM H.G. Ulrich, USN (Ret)

**MDA TOWN HALL MEETING**
- Mr. Thomas Hodgson, Secretary, Connecticut Maritime Association
- Mr. Dana Goward, Department of Homeland Security Executive Agent for MDA

### Wednesday, September 15, 2010

**BREAKFAST SPEAKER:  TECHNOLOGIES FOR PORT SECURITY**
- CDR Patrick Dibari, USCG

**OCEAN LAW & POLICY**
- Dr. John Oliver, "USCG Ocean Policy, Marine Spatial Planning"
- Mr. Jack Belcher, EnergyNorthAmerica, "The Impact on Industry of Marine Spatial Planning & Ocean Policy"
- Mr. Claude G. Thouret Jr., Eagle Bulk Shipping, Inc., "Piracy Policy & the "Redwing Incident"

**SCIENCE & TECHNOLOGY**
- LCDR Alejandro Ameneiro, Spanish Foreign Liaison Officer, Spanish Navy, "Multi-National, Inter-Agency Information Sharing in the Extended Maritime Environment (MISA-EM)"
- Mr. George "Guy" Thomas, USCG, Science &Technology Advisor, "Use of Commercial Satellites for Increased MDA: TEXAS IV, C-Sigma"
- Dr. John Mittleman, Naval Research Laboratory, "State of the Art on Maritime Systems"

**REGIONAL & GLOBAL COLLABORATIVE MDA**
- VADM Ferdinando Sanfelice di Monteforte (Ret),  The Wise Pen Team, European Union, " European Union Maritime Information Sharing"
- ADM Jean Charles Leclair (MN Ret), IALA Representative to the International Maritime Organization, "International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and Maritime Information Sharing"
- VADM Patrick Hebrard (Ret), The Wise Pen Team, European Union, "European Union Regional Approach to Information Sharing"

**A PROCESS FOR CHANGE: IMPROVING INFORMATION SHARING FROM THE PORT UP**

- Ms. Wendy Walsh, Naval PostGraduate School, "Maritime Information Sharing Task Force Update"
- CPT Mike Goldsmith, Norfolk Police Department, "Informal Information Sharing in the Maritime Domain – A Norfolk Perspective"
- Ms. Candice Wright, Long Beach Police Department, "Promoting Collaboration & Information Sharing Between Local Maritime Stakeholders"
- Mr. John Veentjer, Marine Exchange of Puget Sound, "The Role of Maritime Exchanges in Information Sharing – Challenges & Best Practices"

**GALA ADDRESS:**
- Mr. Jeffrey Howard, Director of Enterprise Programs, LexisNexis Special Services
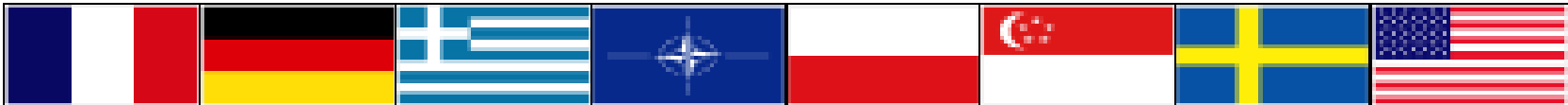
## Thursday, September 16, 2010

**BREAKFAST SPEAKER: MARITIME SECURITY SECTOR REFORM**
- Ms. Donna Hopkins, U.S. Department of State Maritime Security Sector Reform

**REPORT OF WORKING GROUP FINDING BY GROUP FACILITATIONS**

# Multinational Situational Awareness Within the Extended Maritime Environment (MISA-EM)

**Multinational Experiment 6**

**LCDR Alejandro Ameneiro**
**Spanish Navy**
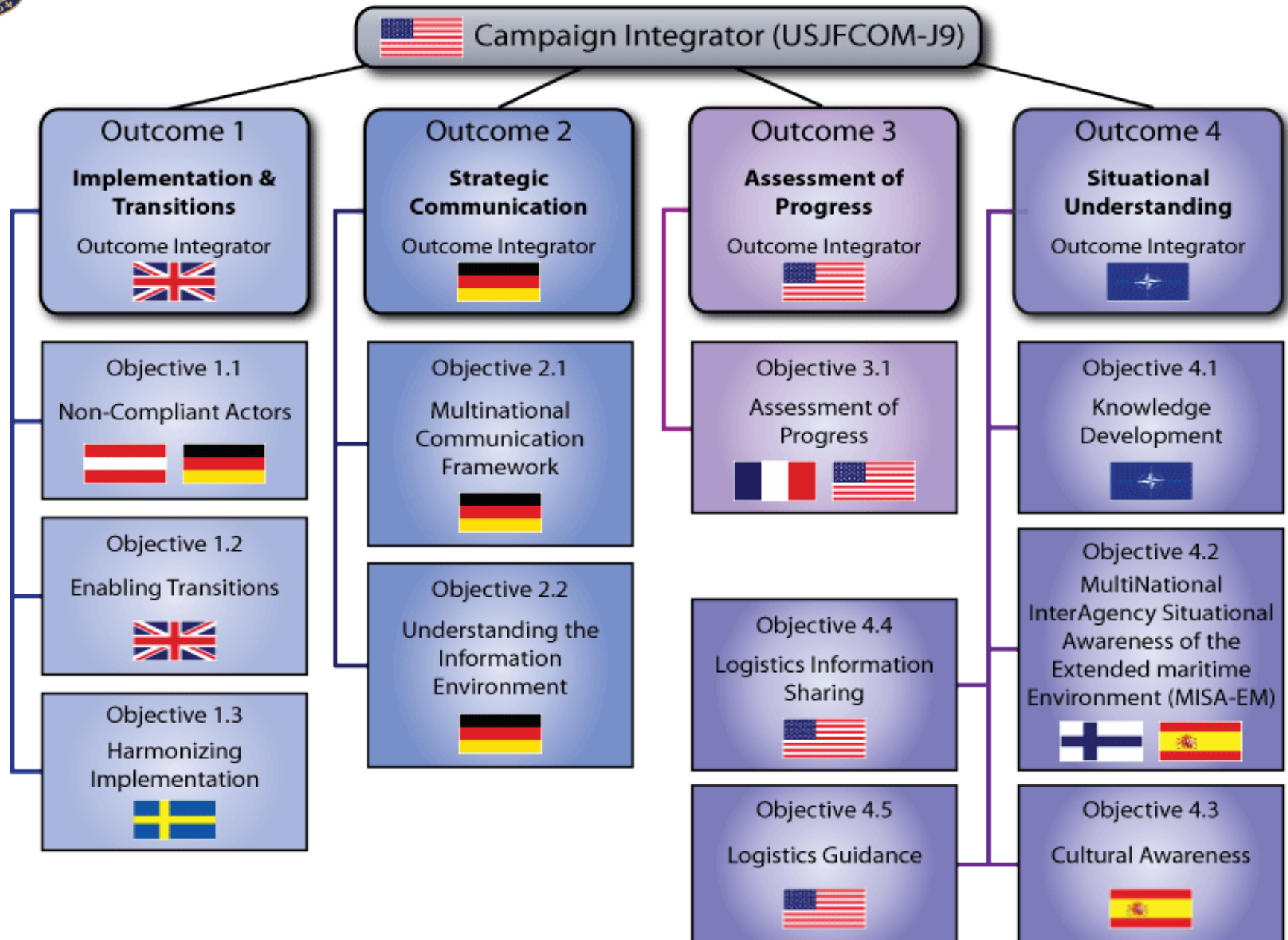**Joint Concept Development & Experimentation**
**USJFCOM, J9**

# *SUMMARY*

- Introduction
- MISA-EM problem
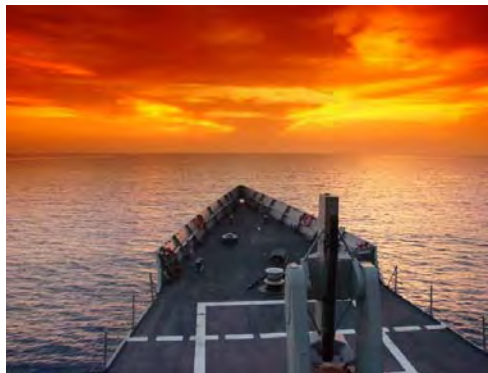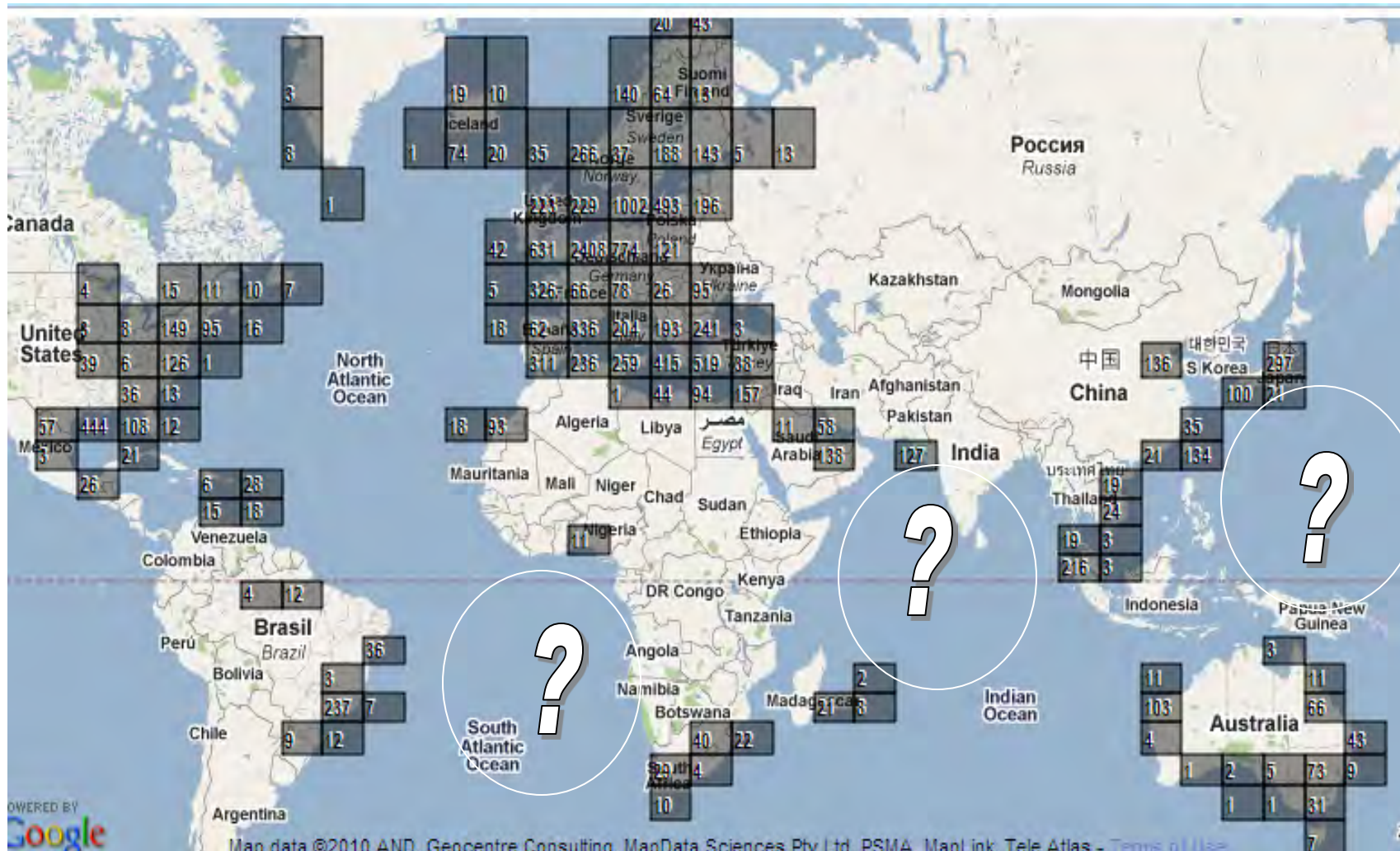- Ideas for achieving MISA-EM.
- Take aways

# Multinational Experiment 6

# The Maritime Environment

# Extended Maritime Environment
# or
# Unprepared Waters

# MISA-EM: Contributors and Participants

- CONTRIBUTING PARTNERS:
- Countries (9):
  - Germany
  - Greece
  - France
  - Finland
  - Poland
  - Spain
  - Sweden
  - Singapore
  - United States
- Organizations (2):
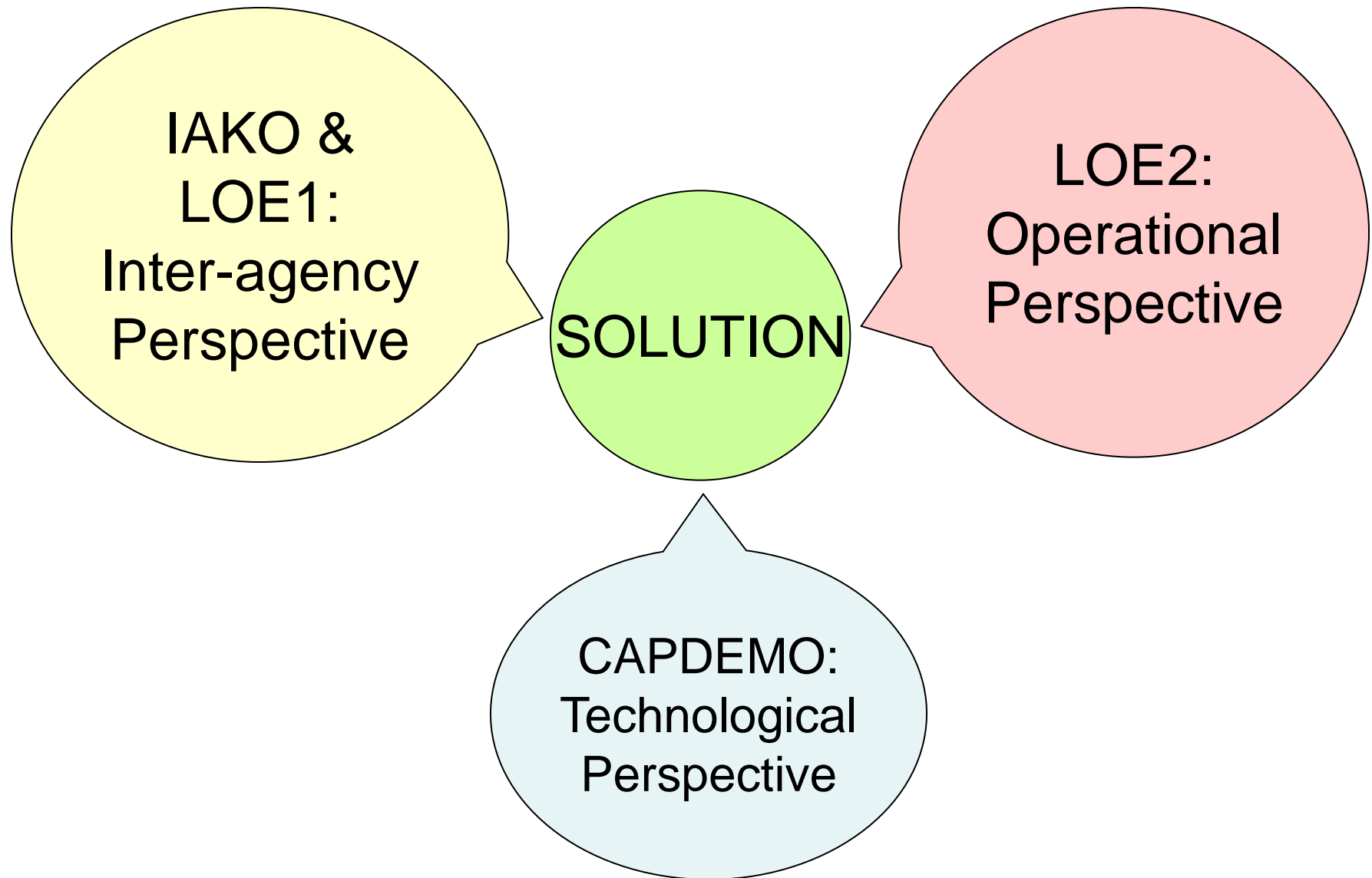  - NATO Allied Command of Transformation
  - NATO CJOS COE.

- EXPERTS FROM:
  - EU Joint Research Centre
  - European Union Military Staff
  - EU Fisheries Control Agency,
  - European Maritime Safety Agency
  - European Defence Agency
  - EU Satellite Centre
  - NATO International Staff
  - IALA
  - University of Aalto
  - University of  Kymenlaakso
  - University of Tampere
  - *Northern Marine Management Limited*
  - FIN National Defence University
  - SWE Coast Guard
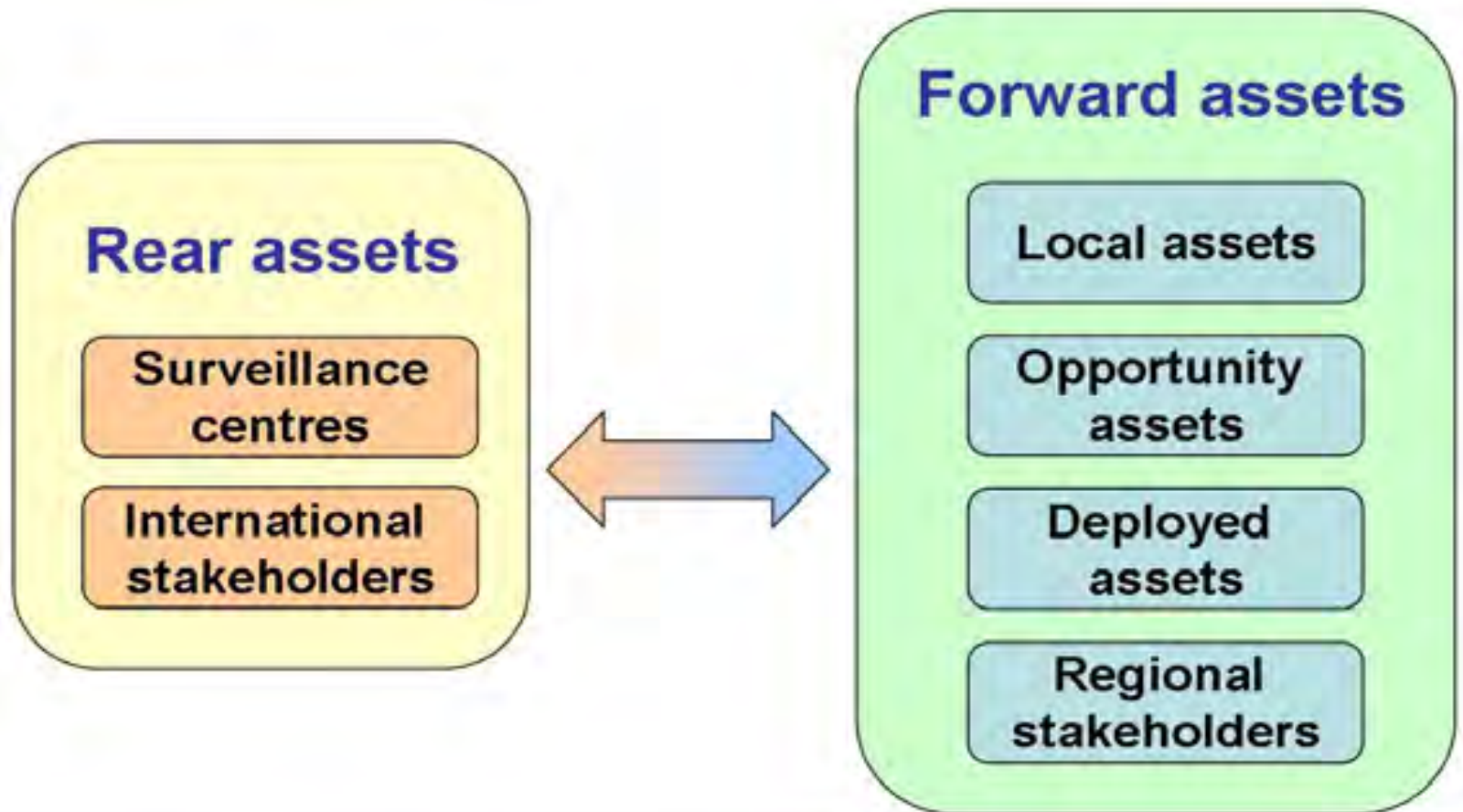  - FIN Maritime Cluster
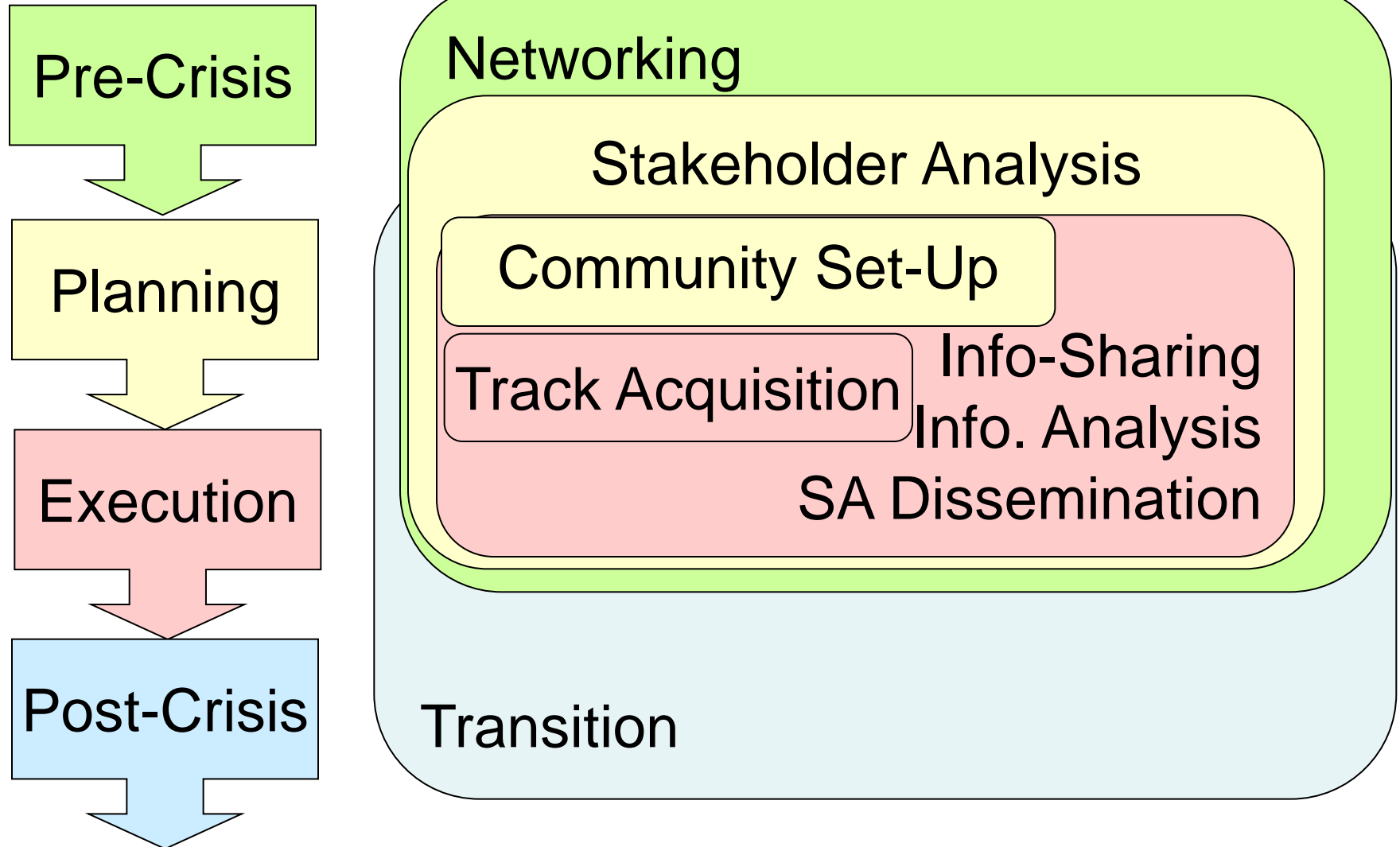  - ESP Maritime Cluster

# Solution Development & Assessment

IAKO & LOE1: Inter-agency Perspective

SOLUTION

LOE2: Operational Perspective

CAPDEMO: Technological Perspective

# Basic Idea

# MISA-EM Processes

# Networking…



PRE-CRISIS

INTERNATIONAL ORGANIZATIONS

NATIONAL AGENCIES

GLOBAL MARITIME COMMUNITY OF INTEREST

PRIVATE SECTOR

MILITARY ORG

NGOs

STAKEHOLDER ANALYSIS

CRISIS

STAKE HOLDER 1

STAKE HOLDER 2

FOCUSED MARITIME COMMUNITY OF INTEREST

DESIGNATED MOC
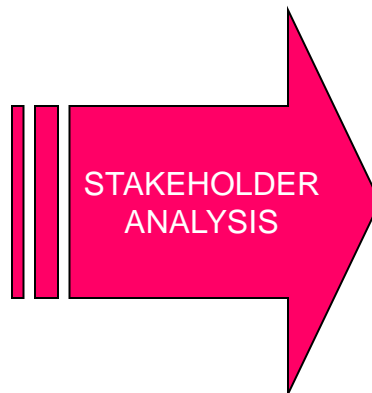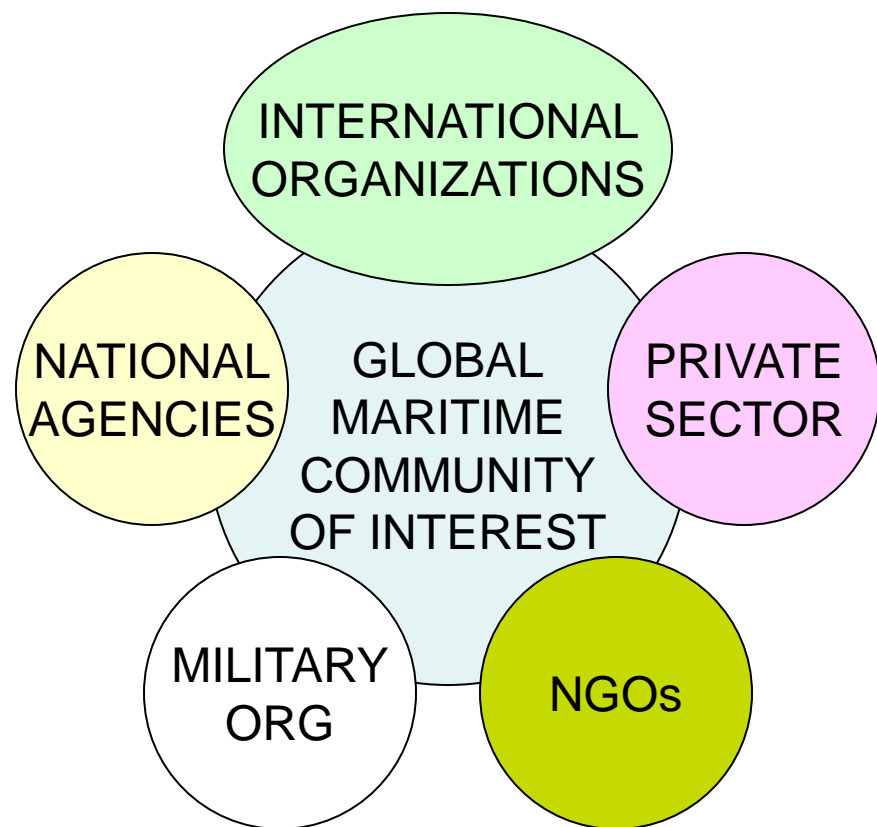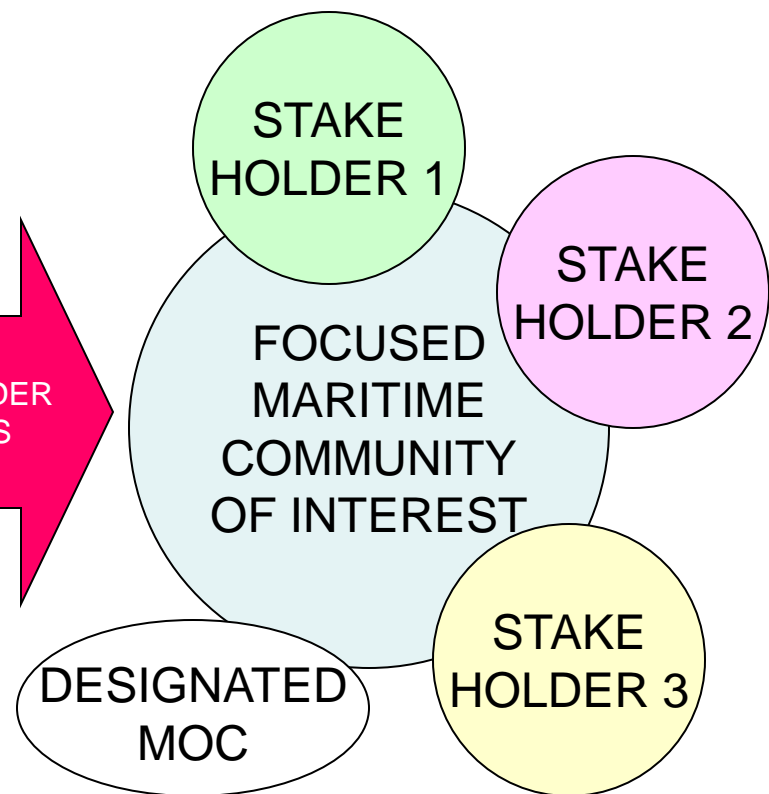
STAKE HOLDER 3

# MISA-EM Structure

# Information Sharing

# What Was Tested?



MODEL OF COMMUNICATION

VIRTUAL COLLABORATIVE ENVIRONMENT

MISA-EM MOC

SOP FOR INFO SHARING IN INTERAGENCY ENVIRONMENT

TOOL FOR CONTACT CLASSIFICATION
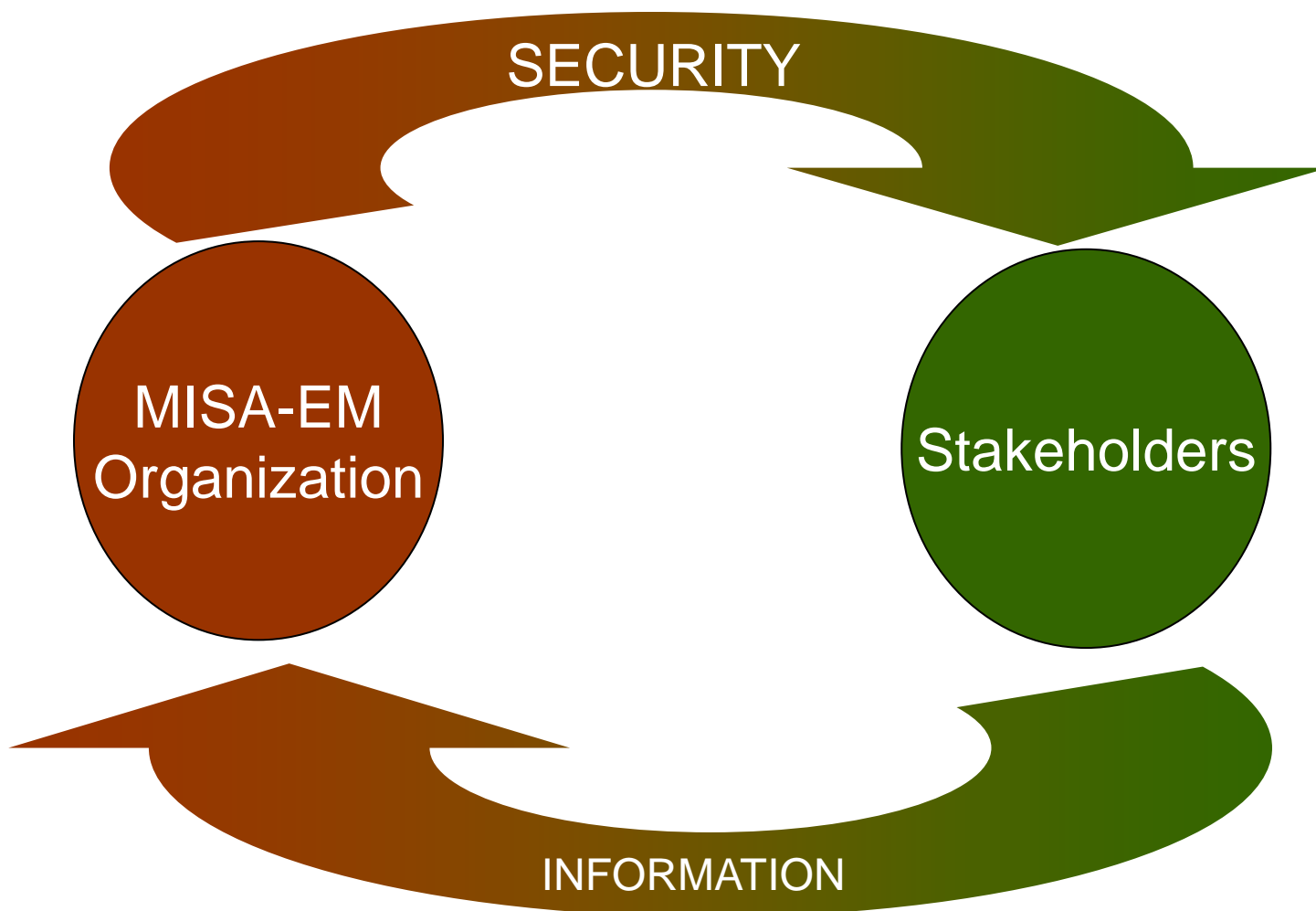
STAKEHOLDER ANALYSIS
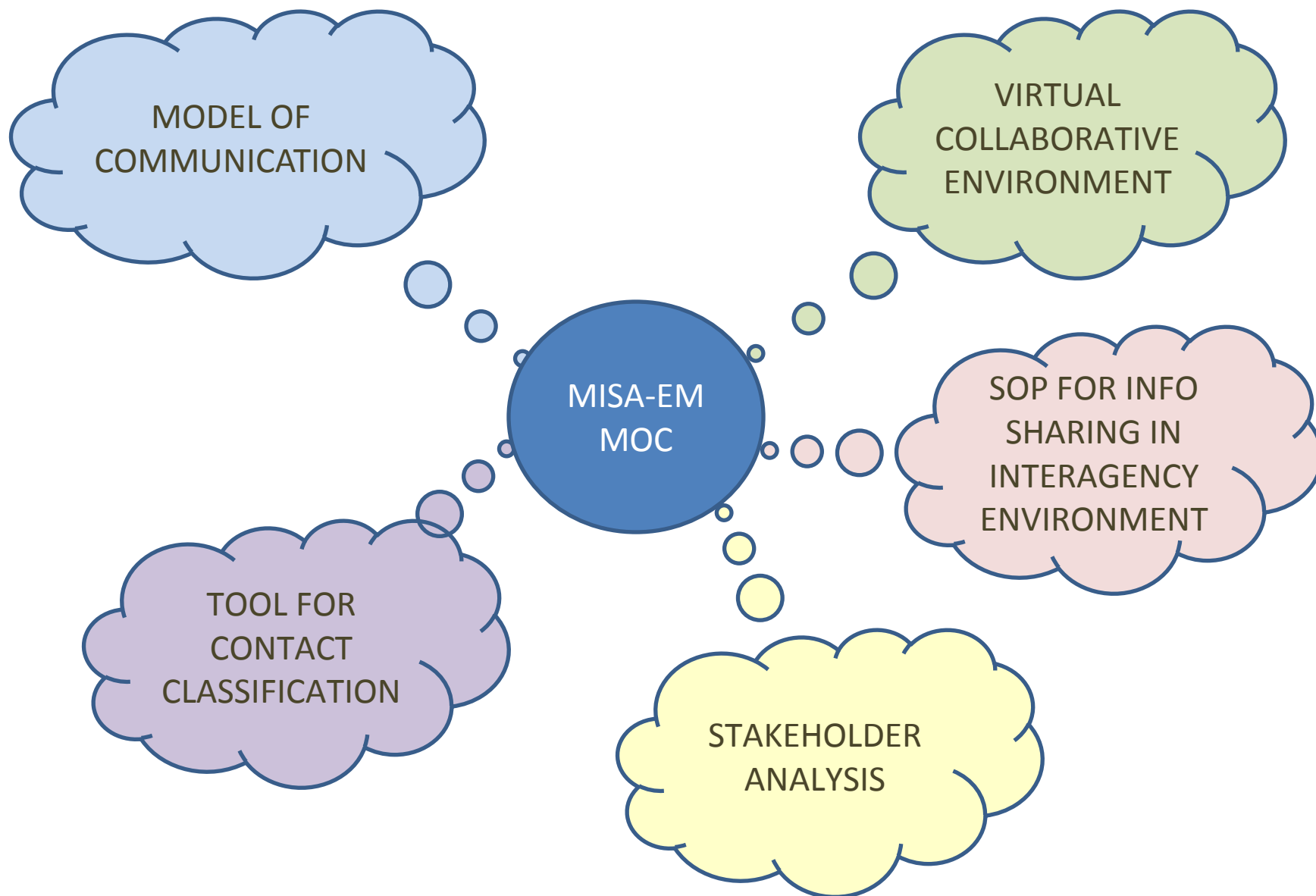
# Technological Aspects
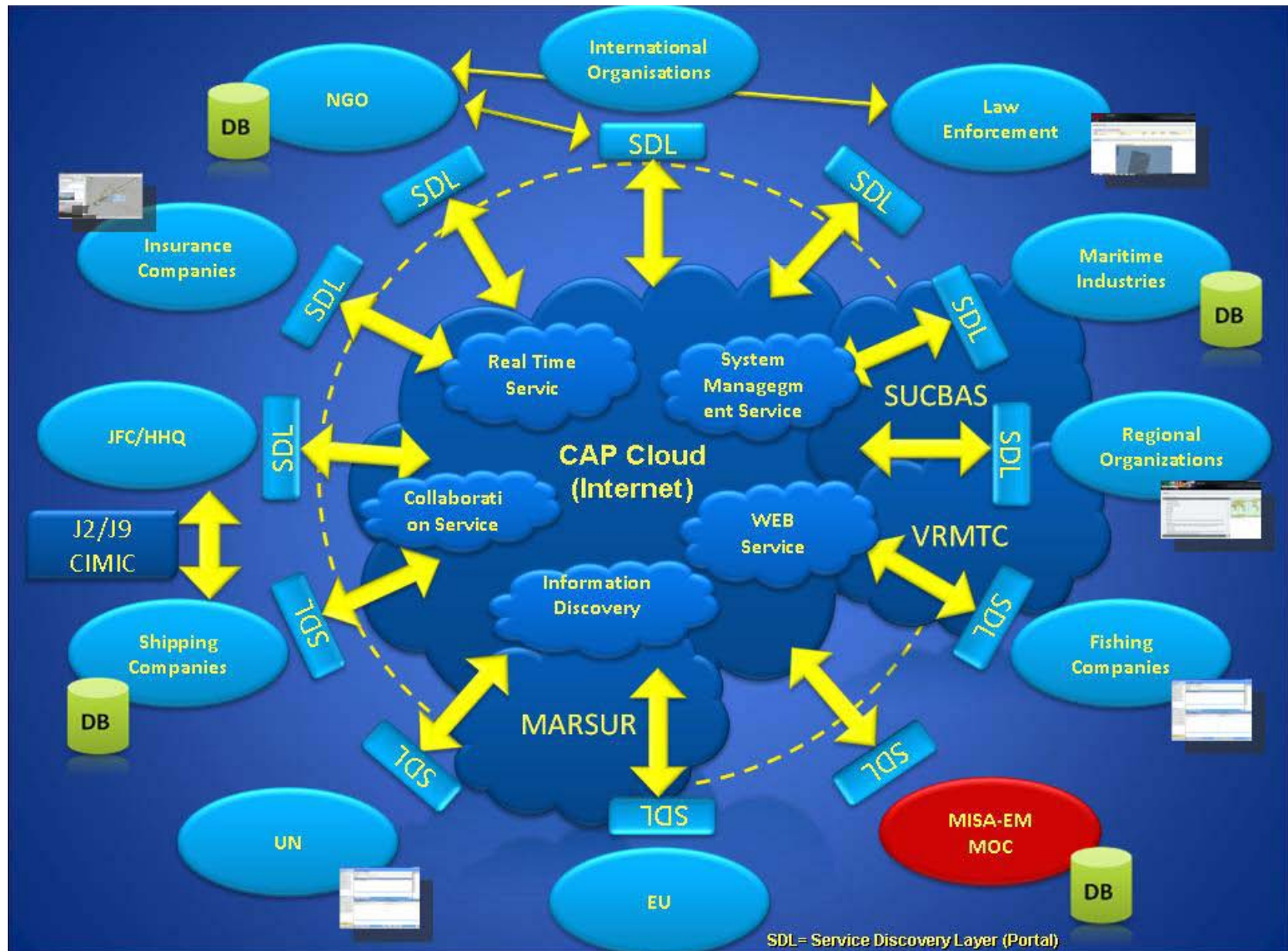
# Take Aways

- **INFORMATION SHARING BASED ON CONFIDENCE AND MUTUAL INTEREST.**

- **PREVIOUS NETWORKING FOR PROMOTING CONFIDENCE.**
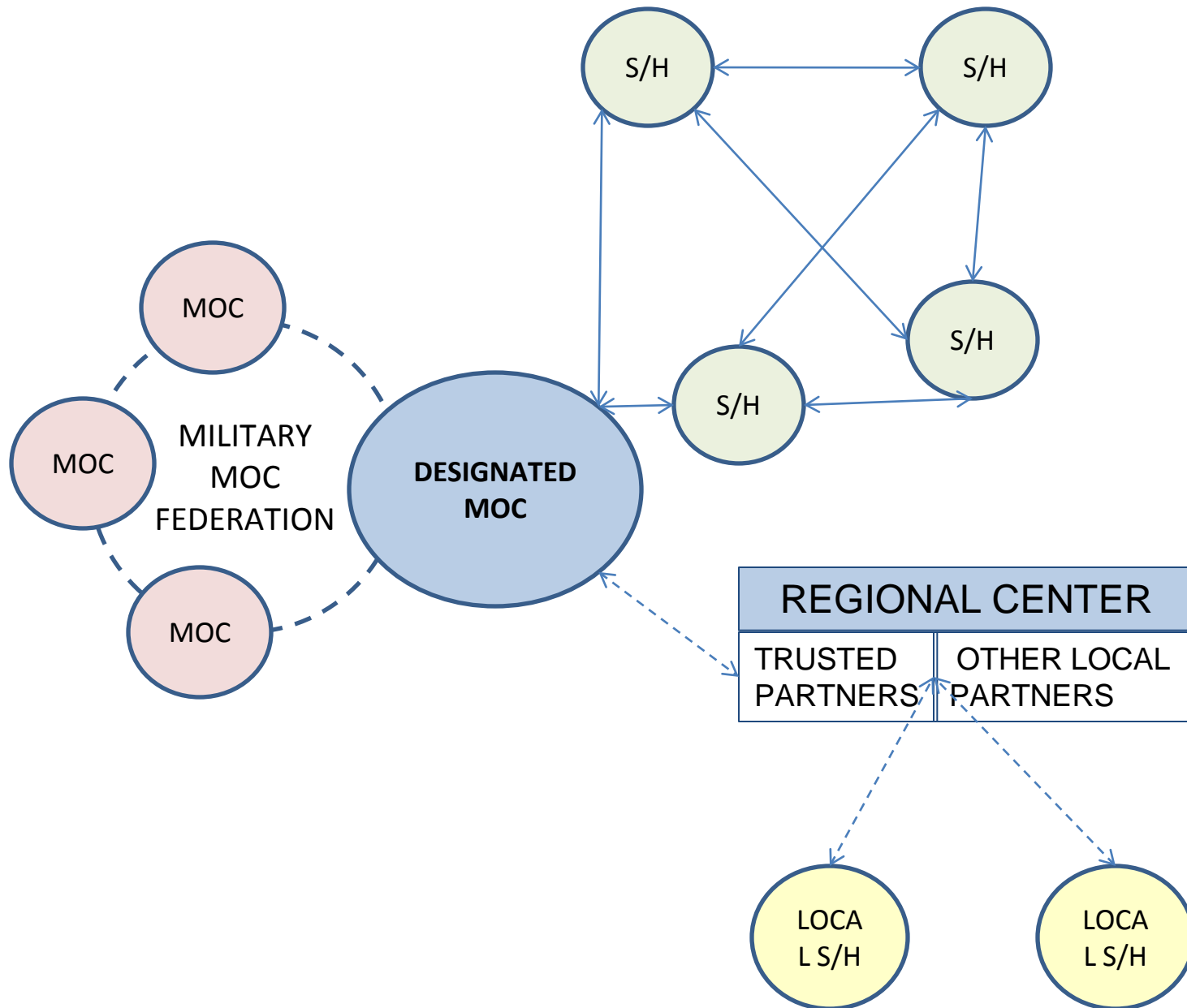
- **STAKEHOLDER ANALYSIS AND COMMUNITY SET-UP WHEN A CRISIS ARISES.**

- **INFORMATION SHARING FOLLOWING SOCIAL NETWORKING FASHION (FACEBOOK - TWITER) SUPPORTED BY COLLABORATIVE TOOLS.**

- **DISTRIBUTED AND FEDERATED SYSTEMS AND SERVICE DISCOVERY TO PLUG NEW ACTORS INTO THE NETWORK.**

15

**The Global Maritime Information Sharing Symposium**
**"The Impact on Industry of Marine Spatial Planning"**
**September 15, 2010**
**Baltimore, Maryland**

# NCOP

- **Diverse coalition of commercial recreational interests**

- **Common concerns over the development of ocean policy and CMSP**

- **Agree on ten common principles**

- **United voice with policy makers**

- **Want a constructive policy**

- **Not opposed to an ocean policy**

# Who We Are

**NATIONAL OCEAN POLICY COALITION**

- **Agriculture**

- **Aquaculture**

- **Chemicals**

- **Coal**

- **Commercial Fishing**

- **Construction**

- **Energy**

- **Forest and Paper**

- **Manufacturing**

- **Mining**

- **Ports**

- **Power Generation/Transmission**

- **Recreational Boating**

- **Recreational Fishing**

- **Tourism**

- **Transportation**

# CONCERNS OF INDUSTRY

- **Unintended consequences**

- **The Devil is in the details**

- **New layers of bureaucracy**

- **Lack of adequate input in the process**

- **Greater restrictions**

- **Long delays for permits/approvals**

- **New fees, taxes, expenses**

# Specific Issues

- **Ocean zoning – More restrictions**

- **Preservation of multiple use**

- **Precautionary Principle 15 (Rio Declaration)**

- **Potential for confusion/Authorities & Existing Statutes**

- **Limited stakeholder input/knowledge**

- **Costs, Taxes, Fees**

- **Decision-making structure (National Ocean Council, regional bodies)**

- **How far inland will it reach?**

- **State versus Federal jurisdiction/Statutory authority**

# COASTAL AND MARINE SPATIAL PLANNING

- "…a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas."

- "…identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives."

- "…provides a public policy process for society to better determine how the ocean, our coasts, and Great Lakes are sustainably used and protected…"

**Source: Executive Order 13547, "Stewardship of the Ocean, Our Coasts, and the Great Lakes," Issued by President Obama on July 19, 2010**

# OCEAN ZONING

- **Assumption of Conflict**
- **Use of CMSP to determine which activities should take place where:**

> **"Multiple existing uses (e.g. commercial fishing, recreational fishing and boating…marine transportation, sand and gravel mining, and oil and gas operations) and emerging uses (e.g., off-shore renewable energy and aquaculture) would be managed in a manner that reduces conflict, enhances compatibility among uses…"**
> **(Final Recommendations at 48)**

- **Impact of ocean zoning on operations of commercial and recreational industries could be severe**

# PRECAUTIONARY PRINICIPLE

- "CMSP would be guided by the precautionary approach as reflected in Principle 15 of the Rio Declaration, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."" (Final Recommendations at 49)

- Concerns over what will constitute cost-effective?

- How can CMSP be based on "sound science" under such an approach?

- Concern over unrealistic burden of proof on ocean users

# POTENTIAL FOR CONFUSION

- "The Task Force is mindful that these recommendations may create a level of uncertainty and anxiety among those who rely on these resources and may generate questions about how they align with existing processes, authorities, and budget challenges."  (Final Recommendations at 9, 77)

- Nine regional planning areas – potentially contentious, political process

- "CMS Plans are expected to vary from region to region according to the specific needs, capacity, and issues particular to each region." (Final Recommendations at 58)

- Questions over state authority

- **Mechanisms for new taxes and fees**

- **"Most governments that undertake MSP have to rely on direct allocations to their budgets from general tax revenues…There are, however, other financing mechanisms available that can generate substantial increases in funding for MSP.  Alternative financing can include…user fees…"  (UNESCO Guide at 32)**

- **"Economic incentives include…surcharges on inputs such a fertilizer and energy, effluent charges, user fees, access fees, license fees, right-of-way fees, development fees, and permit fees." (UNESCO Guide at 75)**

- **At a time of unprecedented economic turmoil and uncertainty, now is not the time for new or increased fees to be assessed on industry**

# DECISION-MAKING STRUCTURE

- **National Ocean Council (NOC), initially composed of 27 federal officials and co-chaired by two presidential appointees, to certify CMS Plans and resolve regional disputes, referring to the President when the NOC is unable to reach consensus**

- **Department of Commerce has 2 NOC representatives (Secretary and NOAA Administrator)**

- **Nine regional planning bodies responsible for developing regional CMSPs to be composed of an unknown number of "Federal, State, and tribal authorities relevant to CMSP for that region"**

- **States may not comprise a majority of each body; even if they do, the dispute resolution process could render concerns of states moot**

- **Apparatus could be ripe for hasty and political decision-making**

# BOTTOM LINE

- **Healthy and vibrant oceans, coasts, and Great Lakes in industry's interest, too**

- **We want to ensure commercial and recreational interests are part of the solution. CEQ has told us we will be part of the solution**

- **Want to avoid new layers of bureaucracy/long delays**

- **We want to avoid unintended consequences**

- **Want to see greater certainty**

- **With adequate stakeholder input a successful outcome is possible**

# The Maryland Port Administration

Baltmore ~ Maryland 21202
www.marylandports.com
800.638.7519

PORT OF
1706
BALTIMORE

# *MARYLAND PORT ADMINISTRATION*

**The MPA is one of six modes under the Maryland Department of Transportation**

- ➢ **MD State Highway Administration (SHA)**
- ➢ **MD Motor Vehicle Administration (MVA)**
- ➢ **Maryland Transit Administration (MTA)**
- ➢ **Maryland Transportation Authority (MDTA)**
- ➢ **Maryland Aviation Administration – BWI (MAA)**
- ➢ **Maryland Port Administration – (MPA)**

## The MPA operates the Six Publicly owned Marine Terminals

- Dundalk Marine Terminal
- Seagirt Marine Terminal (Terminal Operator - Ports America)
- South Locust Point Marine Terminal
- South Locust Point Passenger Terminal (Cruise)
- North Locust Point Marine Terminal
- Fairfield/Masonville Area Terminal
- World Trade Center

- ❖ Each MDOT Mode has a Police Chief (MDTA, MTA), Director of Security (MPA, MVA, BWI), or Coordinator (SHA)

- ❖ Federal guidance through H.R. 1

- ❖ State guidance through Governor's Twelve Core Capacities for Homeland Security

Under the Governor's 12 Core Capacities, several major Projects are underway:

- ❖ Statewide 700 MHZ Voice/Data System
- ❖ Statewide CAD/RMS
- ❖ Statewide Integrated iCCTV Project

All of these projects are coordinated cross-modal under MDOT and are integral in the information sharing capabilities and to ensure Transportation Security

## HOW IS MARITIME INFORMATION SHARED?

- ❖ MD Coordination and Analysis Center – MCAC is our "Fusion Center", also manages Infraguard

- ❖ MD Joint Operations Center at MEMA

- ❖ USCG Baltimore Area Maritime Security Committee – HomePort (in front of and behind the "curtain")

- ❖ Baltimore Port Alliance

- ❖ Baltimore Maritime Exchange

- ❖ Maritime Business Organizations

- ❖ Informal Relationships

# *WHAT IS INFORMATION?*

## Bidirectional, Multi-Dimensional, Fully Integrated Statewide iCCTV System

Information to be Uploaded to and Downloaded from

Various Components and Users

- ❖ Preventative Presence through Camera Visibility
- ❖ Homeland Security through Situational Awareness
- ❖ Congestion and Incident Management
- ❖ Forensic Archiving and Video Retrieval
- ❖ Training and Exercising Tool

## *System Dimensions*

- ❖ **Analytics**
- ❖ **Biometrics**
- ❖ **Optical Character Recognition (OCR)**
- ❖ **License Plate Readers (LPR)**
- ❖ **Bio-Surveillance**
- ❖ **Agro-Surveillance**
- ❖ **Critical Infrastructure Protection (CIP)**
- ❖ **IP Addressable**

# Development of the Transcoder

- ❖ SHA Information Technology staff developed a transcoder that could take multiple sources and types of video in and send out in Flash format (MS)
- ❖ The video coming out has a specific IP address that can be shared across the internet
- ❖ Access to video out is controlled and is constantly "active"

# Current State System Status

- **Statewide iCCTV Systems Survey completed**
- **Alpha and Beta testing of Transcoder completed**
(Currently in  use at SHA)
- **Statewide iCCTV System Integration has begun between SHA and MDTA**
- **All MDOT modes being prepared for Transcoder integration through grant funding**
- **New Transcoder technology introduced and being tested. Will increase capacity from 10 cameras per appliance up to 100 per appliance**
- **Next step is Bidirectional Feed**

Have a Good Conference and

ENJOY YOUR

VISIT TO

BALTIMORE!

# Informal Information Sharing in the Maritime Domain

Michael G. Goldsmith

Norfolk Police Department

# Introduction

- Genesis of article came from GMISS 2009
- Wanted to examine what we do in Norfolk in light of comments made at last year's meeting
- Informal group consisting of personnel from DHS, USCG, NMCO, NPD, and VFC met to discuss these issues

# Informal Network

- Characteristics of MDA in Norfolk
  - Informal in nature
  - Personality driven model
  - Large reliance on informal networks to share information
  - Virginia AMSC plays a large role

# Implications of Informal Network

- Personnel selection becomes important
  - Mission-centric
  - Systems thinkers
  - Non-parochial mind-set
- Relationships have to be fostered to continue success
- Informal network assists in emergency response

# Formal Networks

- Information Sharing also occurs through formal systems
  - Virginia AMSC
  - Joint Terrorism Task Force (JTTF)
  - Virginia Fusion Center (VFC)
  - InfraGard
  - DHS

# Issues

- Too many portals-difficult to keep up with passwords, etc.
- Classification and Pseudo-Classification
  - Citizens as force multipliers
  - Enlisting the private sector
- How to leverage informal networks
  - Getting beyond personality and individuals
  - Single points of failure
  - Lack of succession and transition planning

# National Maritime Domain Awareness Coordination Office

# Charting the Course for MDA
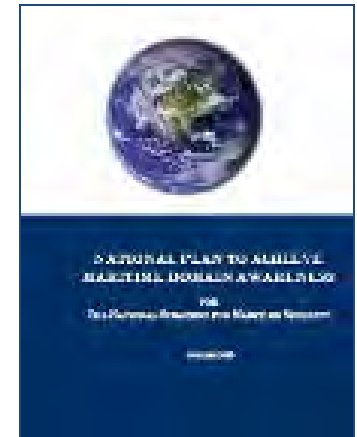
## Dana Goward
## Chairman, NMCO
## GMISS 2010

**UNCLASSIFIED**

# "Awareness" is Important...

- ❑ **Effective operations**

- ❑ **Hawthorn Effect (improving behavior)**

- ❑ **Networks vs Hierarchies**

# U.S. Maritime Domain Awareness Strategic Goals

❑ **Enhance transparency**

❑ **Accurate, dynamic, confident decisions & responses**

❑ **Ensure freedom of navigation & efficient flow of commerce**

*National Plan to Achieve Maritime*
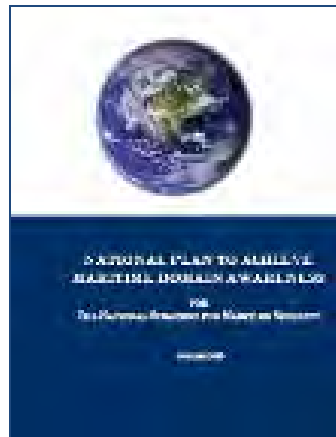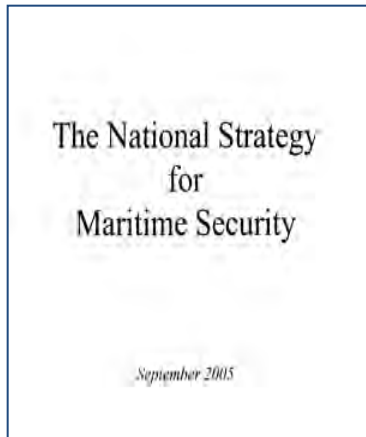*Domain Awareness* **(March 2005)**

# National Maritime Domain Awareness Coordination Office (NMCO)
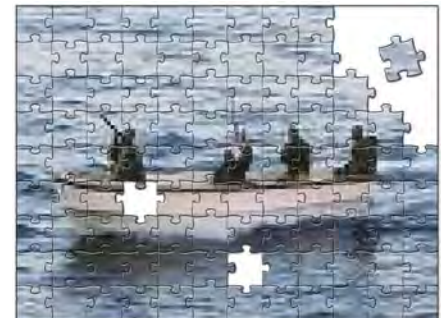


## Interagency Staff and Effort

# U.S. NMCO Authorities



NSPD-41/HSPD-13

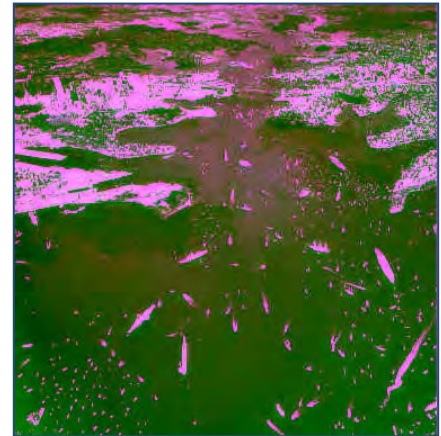The National Strategy
for
Maritime Security
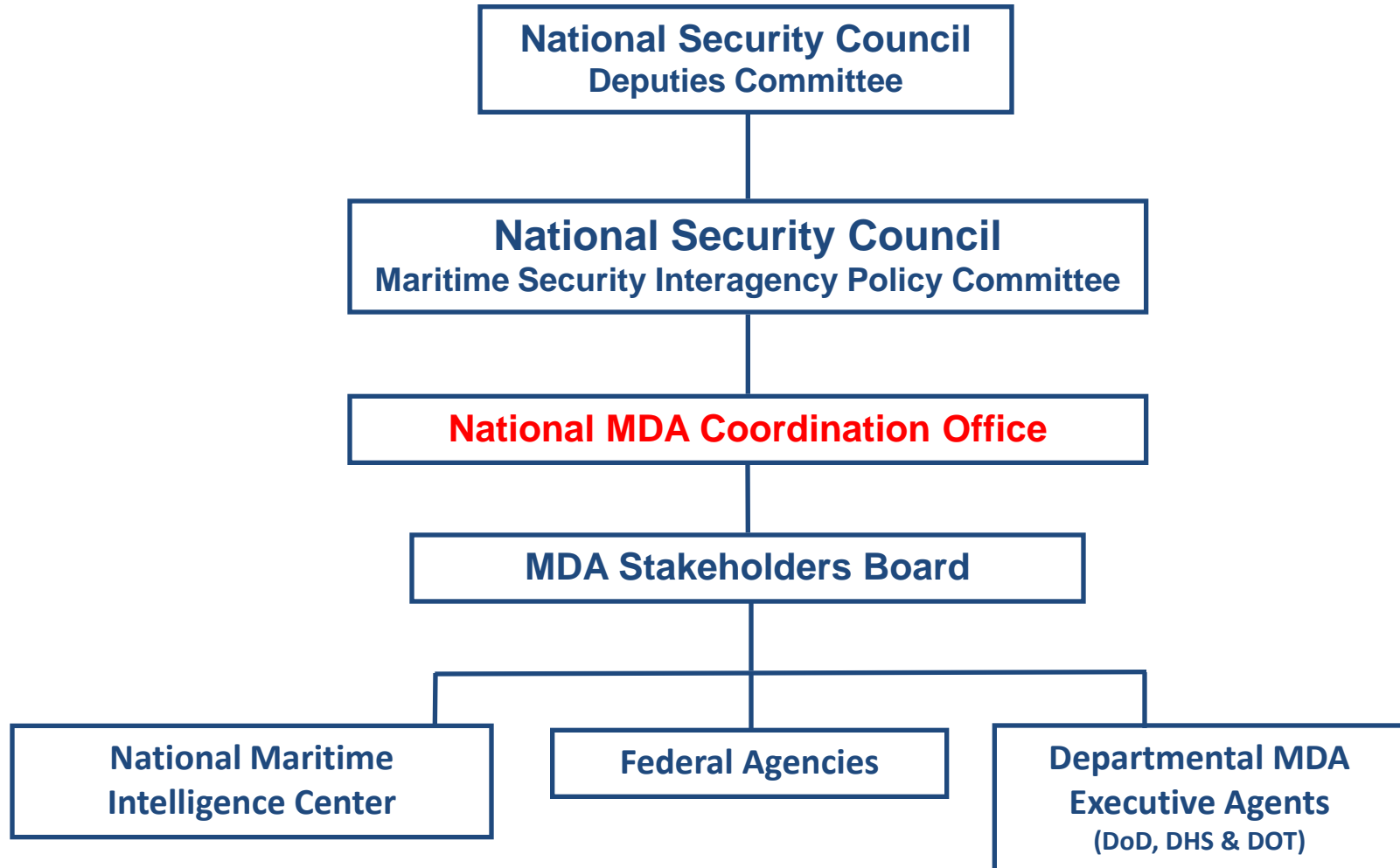
*September 2005*

# NMCO Focus Areas



☐ **Coordination of inter-agency MDA-related efforts**

☐ **Maritime-related info sharing**

☐ **Outreach to the larger maritime community**

# U.S. MDA Governance Framework

```
┌─────────────────────────────────┐
│     National Security Council    │
│        Deputies Committee        │
└─────────────────────────────────┘
                 │
┌─────────────────────────────────────────────┐
│           National Security Council          │
│  Maritime Security Interagency Policy Committee │
└─────────────────────────────────────────────┘
                 │
┌─────────────────────────────────────────────┐
│      National MDA Coordination Office        │
└─────────────────────────────────────────────┘
                 │
┌─────────────────────────────────┐
│      MDA Stakeholders Board      │
└─────────────────────────────────┘
```

| National Maritime Intelligence Center | Federal Agencies | Departmental MDA Executive Agents (DoD, DHS & DOT) |

# NMCO Return on Investment

☐ **Building a culture of confidence and trust**

  ▪ **Working with partners to build greater maritime awareness and information sharing**

☐ **Commercial efficiency**

  ▪ **Increased port throughput**

☐ **Environmental protection**

  ▪ **Improved prosecution of polluters**

☐ **Maritime safety**

  ▪ **Greater awareness for search and rescue**

  ▪ **Collision avoidance**

  ▪ **Locate vessels for port-state control inspection**

☐ **Enhanced National Security**

# Collaboration for the Common Good
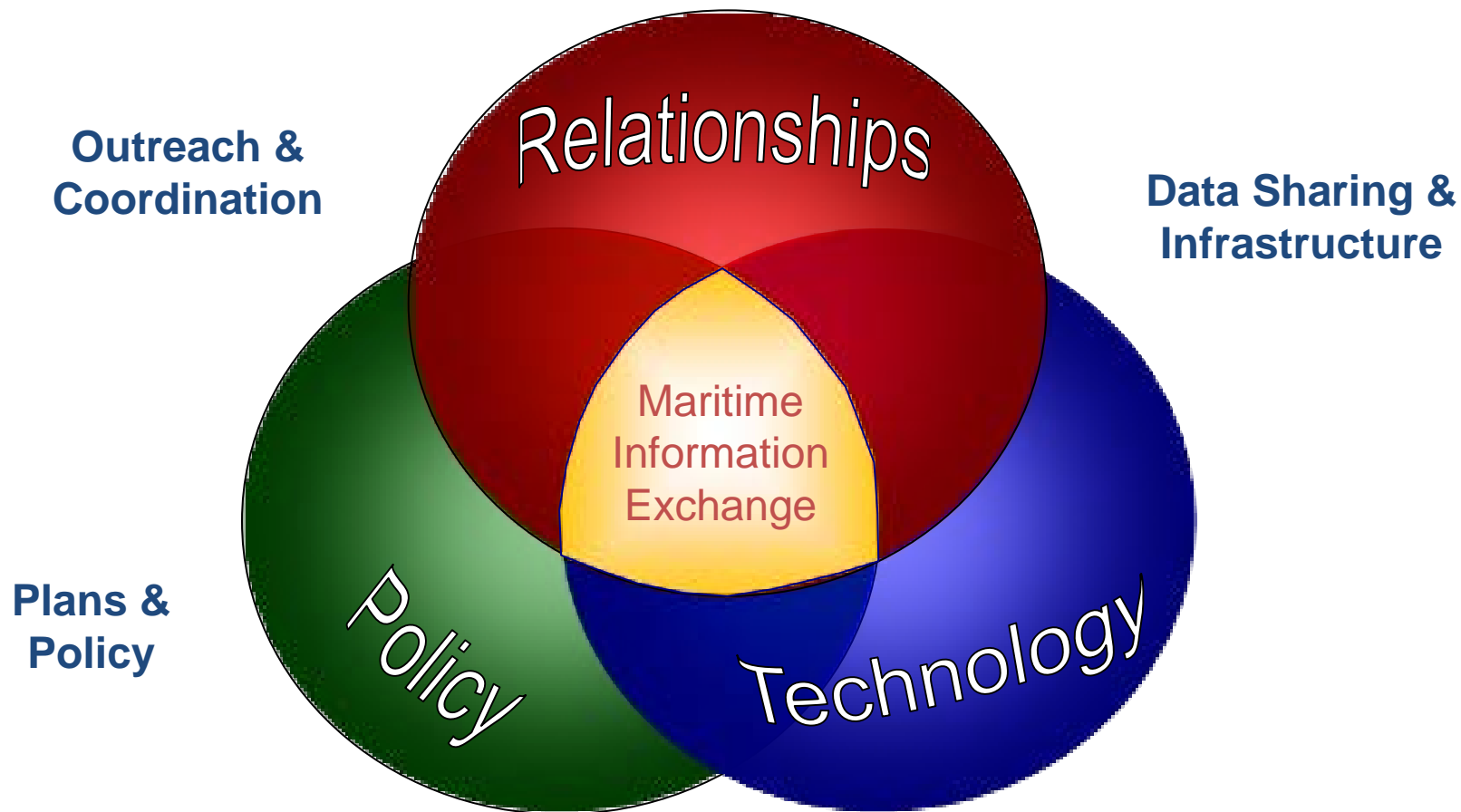
*GMISS......*

**http://www.bluemassmed.net/**

# Integrated Maritime Policy (IMP)
### and                     Maritime surveillance

- Maritime surveillance : one of the three pillars to developing IMP for European Union

    "Governance-Surveillance-Knowledge"

- Maritime surveillance : an integrating factor thanks to specific responsibility of MS

BluemassMed
BLUE MARITIME SURVEILLANCE SYSTEM MED
HIC ET UBIQUE

# Integrated Maritime Policy (IMP)
### and
## Maritime surveillance

- Maritime surveillance : a growing challenge for the future.

- Maritime surveillance optimization for Europe : a long term goal, a multiple ways process.

- Maritime surveillance : not a European bounded issue, but a global one, a worldwide one

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# The pilot projects sponsored by EU Commission

- *Political* projects

- Cooperation *catalysts*

  internal   AND   external

- Dedicated to and
  Implemented by
  the *actual actors*
  in Maritime Surveillance

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HIC ET UBIQUE

# THE PILOT PROJECT
# BLUEMASSMED
## main features

- Clear choice of one vector for cooperation
  *information sharing*

- Coherence needed (within Europe)
  *with all current initiatives and processes*
  *(civil/military, sectoral, agencies, EU/wider…)*
  *and all projects in development (EU agencies, industrial, …)*

- Technical demonstration
  *for feasibility, confidence building, and future projection*

  **http://www.bluemassmed.net/**

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# The partners (more than 32 from 6 MS)

# Project Management and Structure

- Lead Partner /Project Management Team
- National Coordinators
- Steering Group
- Working Groups
- Coordination

- More than 250 participants to the project
  **http://www.bluemassmed.net/**

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BLUE MARITIME SURVEILLANCE SYSTEM MED
HIC ET UBIQUE

# BMM Project state of play

USERs group  >  Common understanding on data

Areas of expanded information sharing

BMM operational view

LEGAL group  >  Green/orange/red light on exchange

TECH group   >  Users requirements translated into

technical requirements

Architectural prospective features for
the future

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HIC ET UBIQUE

# BMM Project way ahead

PROCEEDING TO

elaborating a common maritime picture

interfacing partners maritime surveillance information systems

contributing to European CISE

Call for industry tenders placed Summer 2010

Content : organization and architecture study, partners systems network demonstrator, preparation of demo

Events Summer/End 2011 : wide invitations to attend

BluemassMed
BLUE MARITIME SURVEILLANCE SYSTEM MED
HIC ET UBIQUE

# *GMISS....*
## **http://www.bluemassmed.net/**

# Terminal Vetting Database

## An Update

## KEEPING OUR EYE ON THE BALL

**HEIDMAR**

Heidenreich
Innovations

INTERTANKO

# FACT

**Since the worldwide acceptance of VETTING as a way of life in tanker shipping, the quality of tanker tonnage has improved.**

HEIDMAR

Heidenreich Innovations
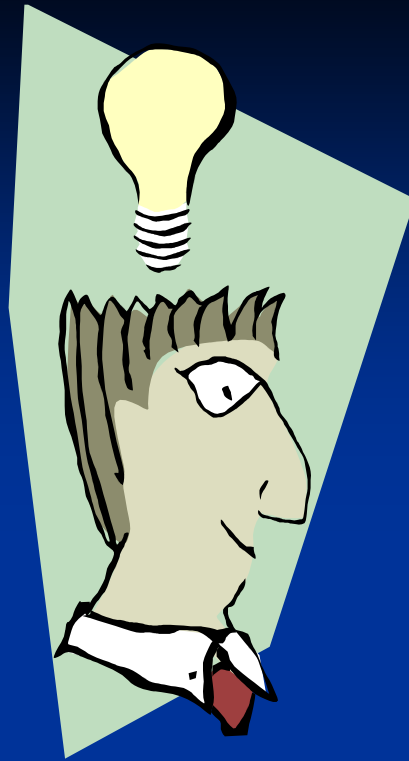
INTERTANKO

**IF THE VETTING PROCESS WORKS FOR SHIPS, WHY NOT TRY IT ON TERMINALS ??**

HEIDMAR    Heidenreich Innovations    INTERTANKO

# IT WAS THIS BASIC THOUGHT THAT WE CREATED THE TVD CONCEPT AT HEIDMAR

**HEIDMAR**

Heidenreich Innovations

INTERTANKO

# AFTER A COUPLE OF YEARS OF RUNNING OUR TERMINAL INFORMATION REPORT

## WE LINKED UP WITH INTERTANKO FOR OBVIOUS REASONS, INCLUDING

**HEIDMAR**

Heidenreich Innovations

INTERTANKO

# INTERTANKO

- Is the Nr. One Tanker Owner Advocate in the World
- Has the smartest tanker minds in the world
- Has a very large and GROWING membership
- Has a great VETTING COMMITTEE, which

is a natural home for this type of initiative

## AND

HEIDMAR

Heidenreich Innovations

INTERTANKO

# IT GAVE US A PLATFORM TO SERVE MORE TANKERS THROUGH USE OF A WIDER DATABASE



**HEIDMAR**

# The Form

- **One Page**
- **Web-Based**
- **User Friendly**

**INDICATIVE NOT DEFINITIVE**

---

**INTERTANKO TERMINAL VETTING REPORT (2.0)**  Save Report

The source of the below information will be kept confidential.

| Vessel Information | | Berth Information | |
|---|---|---|---|
| Vessel name: | * | Country: | * |
| IMO #: | * | Port: | * |
| Master: | * | Terminal: | * |
| Date reported: | * | Berth: | * |
| Arrival draft: | * | Operation: | * |

**Terminal Contact Information**

| Contact person: | Email: |
|---|---|
| Telephone #: | Fax #: |

**Instructions**

Please provide a rating for the following questions on a scale of 1-5.
1:Unacceptable, 2:Below average, 3:Average, 4:Above average, 5:Excellent
Comments are encouraged. All '1' and '2' ratings must be accompanied by comments.

| Grouping | | Rating | Explanation/Comments |
|---|---|---|---|
| Equipment: | Bollard condition: | * | |
| | Condition apron/fenders/dock: | * | |
| | Condition chicksan(s)/hose(s): | * | |
| | Dock lighting: | * | |
| Shore Personnel: | Pre-transfer conference: | * | |
| | Safety awareness: | * | |
| | English skills: | * | |
| | Accessibility/Communication: | * | |
| | Courtesy: | * | |
| | Emergency preparedness: | * | |
| Miscellaneous: | Surveyor safety awareness: | * | |
| | Tug performance/condition: | * | |
| Port Facilities: | Do they accept slops: | * | |
| | Is current a big factor: | * | |
| | Any surge due to traffic: | * | |
| | Any berthing restrictions: | * | |
| | Is the charted water depth at the berth accurate: | * | |
| | Any physical obstructions to the berth: | * | |
| | MSDS issued (load port only): | * | |
| | Shore gangway: | * | |
| | Tug line used: | * | |
| | Quick release shore bollards: | * | |

**Click the button to the right to save the report  > > >**  Save Report

Email the saved file to: download@Q88.com

---

# THE RATINGS

**1. Poor: Worse than average in all areas. Needs lot of improvement.**

**2. Below Average: Worse than average in some areas. Could use some improvement.**

**3. Average: Fully adequate.**

**4. Above Average: Better than average in some regards.**

**5. Excellent: Of a very high quality in all regards.**

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# THREE LEVELS OF UTILITY

1.  Review of terminals prior to vessel's call

2.  Operator/Terminal Cooperation on addressing observations

3. Special Handling By Intertanko for Terminals Resisting Cooperation

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# THE IDEA IS TO MAKE TERMINALS SAFER FOR SHIPS AND SEAFARERS THRU A SIMPLE TWO STEP PROCESS

## ACCUMULATING INFORMATION

## ACTING ON THAT INFORMATION

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# You Can't Do the Second

## Without  Having Done the First

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# Information Collection

- **Is Where Q88  Leads the Way**
- **Through maintenance of over 5000 active reports**
- **Covering over 1100 terminals**
- **And over 1700 berths**

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**Heidenreich Innovations**

**INTERTANKO**

# Data on Terminals is Maintained

- **For 12 Months provided a minimum of 10-reports are in the system**

- **Indefinitely for each terminal until at least 10 reports are accumulated**

**This is designed to keep the Information Fresh**

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# For More Information

- **Contact support@Q88.com**

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# Acting on the Information Collected

- **The very neat system of information collection described is not an end in itself.**

- **It does little good to know of poor conditions at terminals if they are not corrected**
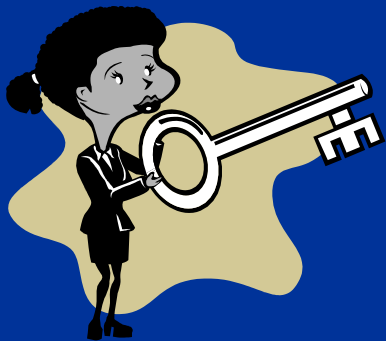
<span style="color:red">**IS TO EFFECTIVELY USE THAT INFORMATION !**</span>

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# Going back to Utility Levels--

**Level 1: Vessel Manager can review terminals prior to vessel's call**

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# Level 1/Pre-Review

- Go to the database before your ship arrives at her next port
- Note the ratings for each aspect of that terminal
- Advise the vessel accordingly.



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# Example 1

- **Vessel is heading to Smith Terminal, Paulsboro NJ**

- **TVD shows average score for Pre-Transfer Conference is only 1.1 out of 5.0**

## Action

## WARN THE SHIP !!!

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# Example 2

- **Vessel is going to Smith Terminal, but your check of the TVD system shows "Fenders" are rating 0.5 out of 5.0 with a note saying that most of them are missing**

## Action

**This One is more complex than the first Example**

# It Requires

■ **Confirmation of the Observation---**

- •**Contact Terminal Management to Discuss**
- •**Dispatch Field Rep to substantiate**
- •**Take photos if needed**
- •**Make Sure Your Facts Are Straight!!**

**IF THE OBSERVATION IS PROVEN TRUE YOU, AS OWNER/OPERATOR,**
**MUST TAKE ACTION**

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# WHAT ACTION???

...Discuss with shipmaster

...Discuss with Charterer

...Discuss more with Terminal Operator

## Ask:

## Can this be corrected prior to my ship's arrival?

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# IF THE ANSWER IS "NO"

- **You must politely but firmly refuse to moor at that terminal.**

**If you have set this up properly**

- Your charterers will support you
- Your management will support you
- Your Master and Crew will support you
- The Port State Will Support you

**EVEN GOD WILL SUPPORT YOU**

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# But if you permit berthing anyway DESPITE  such information

# You might as well have not even bothered participating in the program



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- **Because you have collected valuable information which you have refused to use.**

**REMEMBER OUR OBJECTIVE**

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# Is not to collect Information

- **It is to USE that information to make life better for our ships and seafarers**
- **Without implementation of our newly gained knowledge, we have**

## ACCOMPLISHED NOTHING

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# Utility Level 3

- **When the terminal refuses to discuss conditions, or tells you to take a hike we encourage you to**

**Relay this to us at the Intertanko Vetting Committee Terminal Vetting Database WORKING GROUP**

**We will take further action on your behalf, including**

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# What We Can Do

- Directly Contact the terminal
- Put the Issue in the Weekly Intertanko Newsletter
- Advise Other Owners of the condition
- Alert Port State Authorities

### On behalf of our seamen

# How to Do That....

- Capt John Hill, Chairman TVD Working Group
- Email John.Hill@Heidmar.com


- Capt Howard Snaith, Secretary to Intertanko Vetting Committee
- Email Howard.Snaith@Intertanko.com

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# But These Actions Are Seldom Required

**Because Terminal Professionals Also Want Unsafe Conditions Fixed**

**We have Similar Objectives!!**

# TO DATE WE HAVE INPUTTED OVER 18000 REPORTS

## INDUCED SEVERAL TERMINALS TO MAKE EXPENSIVE IMPROVEMENTS

**… STARTED CONSTRUCTIVE DIALOGUES WITH MANY OTHERS,**
**…STARTED WORKING WITH OCIMF IN A DATA-SHARING EFFORT**
**…HAVE CREATED A TERMINAL-FEEDBACK FUNCTION**
**...WE HAVE OPENED THE DATABASE TO ALL TANKERS, WORLDWIDE**

## BUT THERE IS MUCH MORE TO DO!!

**…We need to keep building our database volume**
**...We need to keep spreading the word**

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# Some Things We're Working On are:
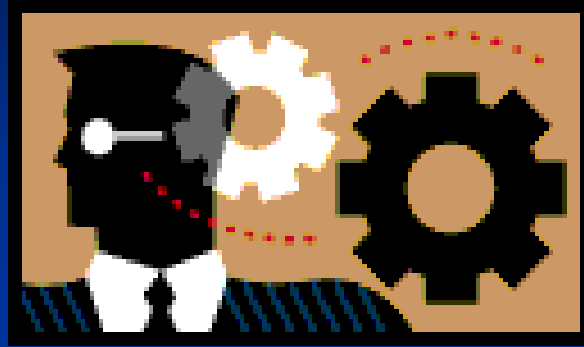


- **Ability for Terminal to  Comment On Any Low Scores**
- **Ability to Email TVR's from Website**
- **Charting/Post Voyage Analysis**
- **.Vessel—Terminal Dialogue re Observations**
- **Exporting Results into Excel**
- **.More Effective Use of Port Facility Information**

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# And, WE NEED YOUR HELP

…If the program is interesting to you let us know

…Talk it Up With Your People

...Get Your Ships in on the Program

## SO WE CAN BUILD ON THESE EFFORTS TO HELP OUR SHIPS

*And work with our terminal friends to make our industry safer for all*

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**INTERTANKO**

Capt John N. Hill
Chairman
Intertanko TVD
Working Group

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Innovations

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[www.cmaconnect.com](http://www.cmaconnect.com)

Connecticut Maritime Association, Inc

One Stamford Landing, Suite 214

62 Southfield Ave

Stamford, CT 06902

USA

# The CMA

- Unique, volunteer based, <u>non-profit trade association</u> established in 1984 by its members for its members
- <u>Individual members</u> represent every aspect of shipping and international trade including ship owners, operators, agents, brokers, maritime attorneys, ship finance and bankers, cargo traders to name a few.
- Our 1500 plus members extend well <u>beyond CT borders and the name of our association</u>
  - 65% from NY, NJ, CT area
  - MD, VA and DC the next largest membership cluster
  - FL, TX, MA and CA the next largest individual states
  - Over 10% are International/Foreign members

CONNECTICUT MARITIME ASSOCIATION, INC.
cma

# Our Mission Statement

" To provide an open forum for individuals to exchange ideas and information supporting the development and growth of the international maritime and trade industries."

# Events and Information Tools

- Monthly luncheons
- Monthly newsletter
- Website –www.cmaconnect.com
- Job Mart – for candidates and companies
- Social, Sports & Entertainment for networking and building community including: softball and fencing leagues, golf outing, tennis tournament, summer picnic, 12 Meter Americas Cup yacht regatta and festive holiday party.
- Annual Shipping Conference & Trade Show which draws over 2400 shipping professionals to CT (March 21, 22, 23, 2011) and includes seminars, discussions, cutting edge exhibits and networking opportunities.

# CMA Outreach

- Provide nearly $50,000 per year in <u>scholarships</u> and <u>internships</u> to students from high schools, maritime academies and graduate programs.

- Support the maritime academies, Seaman's Church Institute and USCG Foundation.

# A Resource For You!

[www.cmaconnect.com](www.cmaconnect.com)

Thomas H. Hodgson

Secretary

MJLF & Associates, Inc

300 First Stamford Place

Stamford, CT 06902

thodgson@mjlf.com

(203) 326-2830

# GMISS

## Maritime Domain Awareness
## Open Source Data Utilization

**Jeffrey Howard**

**LexisNexis Special Services Inc.**

**Finnegan NELSON Howard**

# Acquiring and managing data

**LexisNexis**

| Cases and Law | Open Media | World Finance | Public Data | International Data | 25 + Watchlists |
|---|---|---|---|---|---|
| Federal and state | Newspapers | SEC documents | Names | World news | US Patriot Act |
| Case law | Newsletters | Corporate profiles | Addresses | Country profiles | Politically Exposed |
| Regulations | Magazines | Market research | Criminal Data | Business analysis | Persons |
| AG opinions | Trade journals | Financials | Real Property | Country information | World-Check database |
| Rulings | Transcripts | Demographic | Marriage | International profiles | OFAC List |
| Citation services | Wire services | M&A information | Divorce records | Legal and regulatory | United Nations |
| Secondary sources | Political information | | Voter records | information | Consolidated List |
| Megan's Law | | | Assets | | Terrorist Exclusion List |
| | | | Credit information | | Unauthorized Banking |
| | | | Insurance information | | List |

**25 + Watchlists (continued):** FinCEN 314(a) list (custom add) Bureau of Industry and Security List Canada's Office of the Superintendent of Financial Institutions (OSFI)

- *Total Storage:*                     *1.2 Petabytes*
- *Online Data Sources:*               *35,272*
- *Searchable Documents:*              *4.2 Billion*
- *Searchable Records*                 *40+ Billion*
- *Searches per Month:*                *60+ Million*
- *Documents added per hour*           *106,814*
- *Daily User Sign-Ons:*               *360,000+*
- *Web Page Views per Month:*          *351+ Million*

# Maritime Domain Awareness Capability Gaps

**Critical data requirements to secure the global maritime supply chain**

"**In order to support Maritime Domain Awareness (MDA) operations, the Navy needs an enterprise-level solution to collect, evaluate, and disseminate a wide variety of information to field units and other government agencies.**"

*- SECNAV MDA memo*

"**The capability gaps below come from fleet operator input, MDA and communication systems requirement messages, national MDA implementation team analysis, experimentation objectives, and other documents:**

- **Lack of net assessment, fusion, and collaboration tools**
- **Lack of cross domain solutions for information sharing**
- **Lack of maritime information gathering and collection**"

*- Fleet MDA CONOPS*

**"Lack of cross domain solutions for information sharing"**
**- Fleet MDA CONOPS**

**Data Policy: The need for safe, secure and correct data sharing procedures**

- **MDA privacy and policy requirements**
- **Domestic and International data sharing processes and procedures**

## KNOW YOUR DATA POLICY

- Common data fusion platform with data policy/data sharing principals architected into the overall solution
- Communities of interest created to facilitate sharing within the US Navy and between the US Navy and other US Government organizations and coalition partners
- "Better information means better decisions."

# Open Source Data Enrichment

*"Lack of maritime information gathering and collection"*
*-Fleet MDA CONOPS*

**Data: The need for reliable, accurate, and mission-critical content from domestic and international sources**

- Maritime vessels
- Maritime businesses
- Merchant mariners and seafarers
- Bulk and containerized cargo
- Maritime infrastructure
- **OTHER??  Social networking analysis/deep web mining**

## The Data Supply Chain is Critical

- Establish providence
- There can be too much data, especially for analysts
- How do you spot the needle in the needle stack?
- "Put all of your money in more data"
- Who is Fishbutt? The wisdom of crowds?

# MDA Data Fusion

*"Lack of net assessment, fusion, and collaboration tools"*
*-Fleet MDA CONOPS*

**Data Fusion: The need to incorporate all relevant data sources for real-time anomaly detection and threat assessment**

- Structured and unstructured data
- Archival data correlation and predictive analysis
- Disparate data and intelligence sources
- Custom algorithm development and integration into existing analytics tools



## The Power of Data Fusion

- Harness IT for data ingestion, cleansing, and analysis at data fusion centers
- Ensure that policies, procedures and security requirements built into the platform
- Link data fusion centers for ease of data sharing and policy coordination

**Not just having the data.**
**How do you use the data?**
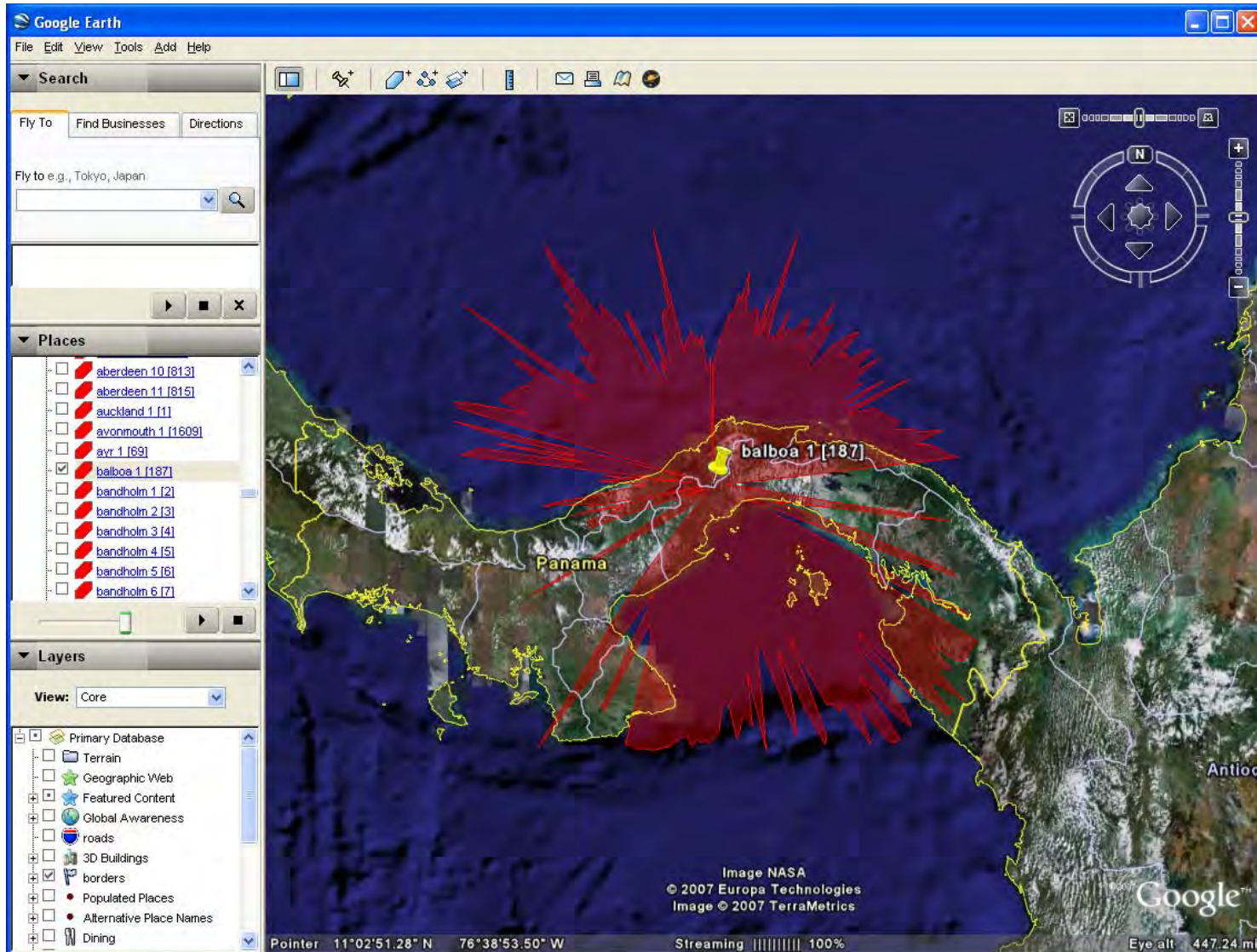
# Meeting the needs of the global maritime supply chain

## Learn from other enterprises

- National Center for Missing and Exploited Children
- State and Local Law Enforcement fusion centers

## Set a thief to catch a thief

- Our opponents are operating in a non traditional, asymmetrical environment. Find like minded individuals and harness their approach

## Incentivize cooperation

- What value does commercial industry have in data sharing?
- How can the US Government incentivize cooperation?
- Don't just pay for data. Insurance?

*International Association of Marine Aids to Navigation and Lighthouse Authorities*
*Association Internationale de Signalisation Maritime*

# GMISS - 2010

# *IALA and Maritime Information Sharing*

*R.Adm. Jean-Charles Leclair (rtd.)*
*IALA Accredited Representative to IMO*
*Dean, IALA World-Wide Academy*

*International Association of Marine Aids to Navigation and Lighthouse Authorities*
*Association Internationale de Signalisation Maritime*

# GMISS – 2010

**IALA and Maritime Information Sharing**

1. *IALA*
2. *Context from an IALA perpective*
3. *IALA-NET*
4. *Problems to solve, Actions to be taken.*

# IALA-AISM …

♦ *Is a Non-Governemental Organization (NGO), created in 1957*
 – Not-for-profit
 – Secular and non-political
♦ *Membership*
 – National
 – Associate
 – Industrial
 – Honorary

*… brings together services and organisations that deal with marine aids to navigation*

*… provides a forum to share expertise*

© M. Larrinaga

# Aim of IALA-AISM …

*Fostering the safe, economic and efficient movement of vessels by <u>improvements</u> and <u>harmonisation</u> of aids to navigation worldwide*

# For IALA Aids to Navigation

# *include:*

- *Traditionnal AtoN (lighthouses, beacons, buoys...)*

- *Radio AtoN (GNSS, e-Loran...)*

- *VTS, VTMIS, VTM... (Domain Awarness?)*

- *AIS*

- *...*

# Sharing information is not new

It started long time ago by sharing information on lights (lights list), charts, navigation, MSI (Navtex, SafetyNet), weather, ...

More recently by exchange of information such as PSC inspections (PSC MoUs, Equasis)

Through voluntary and mandatory ship reporting systems inside, but also outside territorial waters since 1993 (Valdés)
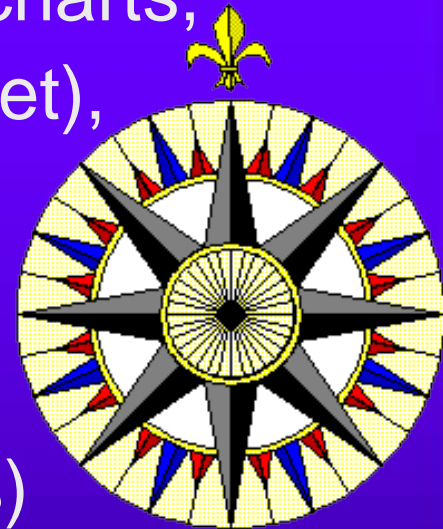
# Maritime traffic monitoring



**Mandatory ship reporting systems**

90 MN
6 H à 15 nds

105 MN
7 H à 15 nds

Cross Gris Nez

Cross Jobourg

Cross Corsen
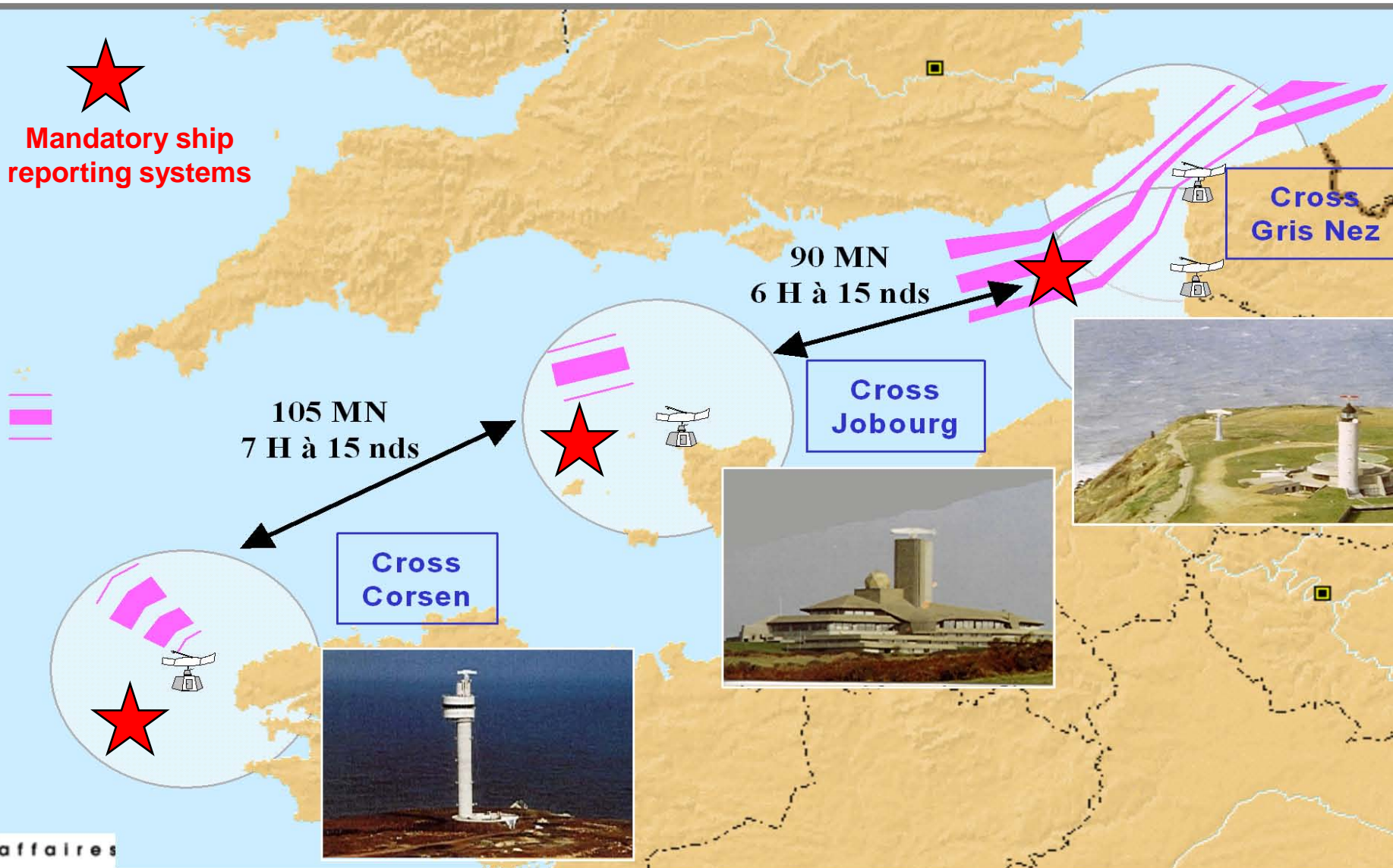
# Sharing information is not new

Lloyd's List is very and rightly proud to explain that they have tracked ships and reported their situation for nearly three hundred years.

Local newspaper used to report position of ships of the national flag or calling at ports of the region.
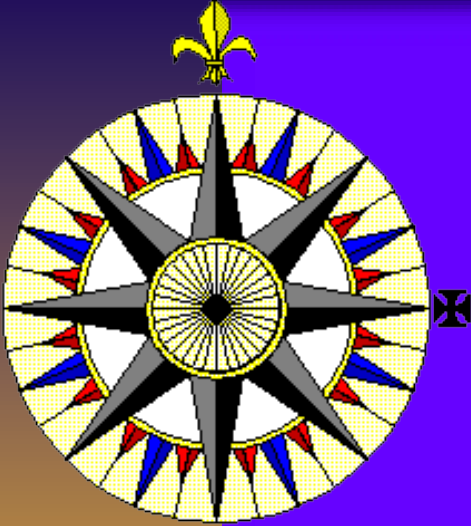
# For IALA and its Members, sharing information is essential

It is one of the main functions for a VTS, it is the main function for VTMIS and, to morrow, for a VTM.

It is why IALA was the promoter of AIS to ITU and to IMO.

IALA

AISM

# Recommendation ITU-R M.1371-3

Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile band (150 pages).

## SOLAS Chap. V - Reg. 19

Mandatory carriage introduced in 1997, accelerated implementation decided in 2002

# AIS has changed the maritime world and made the shore Authorities more responsible

- In the (recent) past, with signal stations / binoculars : no idea on traffic along the coast

- Radar : few ideas

- Mandatory ship reporting system : major legal evolution, improves the knowledge

- AIS : all SOLAS ships are identified and the traffic along the coast cannot be ignored any more (density, dangerous situations, efficiency of aids to navigation). Shore Authorities have the tool to implement SOLAS V-12 (VTS) and V-13 (AtoN).

Suggested new two-way route limit

Upright soundings - need investigation

# Development of shore based AIS Networks

Very soon after the IMO decision to make the carriage of AIS mandatory, there were several public initiatives to develop systems of exchange of AIS information:

♦ On national basis (many countries)

♦ On regional basis (few, Helcom, North-Sea, SafeSeaNet...)

♦ On world-wide basis (one, MSSIS).

In the meantime, the private sector using the broadcast function of AIS (no secrecy!) has developed several systems accessible to everyone through Internet, sometime for free, sometime by buying information. The next slide show half of the 1st page of Google on AIS tracking.

I A L A

A I S M

## Live Ships Map - *AIS* - Vessel Traffic and Positions

- Vessel positions *tracking* based on *AIS* data. Real-time ship locations and port arrivals departures.*www.marinetraffic.com/*

## *AIS* Vessel Data live in Google Earth - vesseltracker.com

- A*IS* vessel signalling reporting *AIS* data live in Google Earth. *www.vesseltracker.com/en/Googleearth.html* -

## *AIS* Vessel *tracking*

- Ships fitted with an *AIS* transponder automatically broadcast information, such as their position, speed, and navigational status, at regular intervals via a **...** *www.sea-seek.com/real_time/index.php* -

## Vessel *Tracking* and Automated Identification System (*AIS*)

- The first version was developed by Astra Paging Ltd. in 2006 and distributed among the custommers of commercial *AIS tracking* service VT Explorer. **...** *www.vesseltracking.net/* -

## *AIS* Live

- THE FIRST GLOBAL *AIS* NETWORK. AISLIVE **...** countries and is the most cost effective method of *tracking* vessels in real time available today. **...** *www.aislive.com/* -

## Your free source for vessel monitoring and *tracking,* live *AIS* **...**

- Digital-Seas.com is the popular free ship-spotting community and vessel-*tracking* website for ship lovers, ship spotters, seamen and other **...** *www.digital-seas.com/* -

## *AIS* free ship and vessel *tracking. AIS* data sharing in raw NMEA **...**

- *AIS tracking* services AIS is the mariner's most significant development in navigation safety since the introduction of radar. The system was originally **...** *www.aishub.net/* - En cache - Pages similaires

♦

# **Seasearcher/Lloyd's MIU** "has purchased the necessary receivers for each of its existing reporting sources which allow us to offer our customers not only the **world's largest** AIS (Automatic Identification System) coverage but also the **highest quality** of information in the market.

The powerful Lloyd's MIU AIS functionality allows the user to study total AIS traffic patterns and it is possible to filter by type, classification, flag, gross and deadweight tonnages. Most importantly, with a lot of our AIS offerings it is possible to view both Seasearcher and our AIS system side by side switching seamlessly between the two applications, linking the vessels, ports or casualties plotted by each AIS station to the qualified ownership, characteristics, casualty and ports records recorded in the Lloyd's MIU database. Vessel, port and casualty positions are plotted against high level costal maps, but, as the user zooms in to take a closer look, electronic maritime charts are used to provide a detailed view of the port from which the AIS data was received. This enables precise identification of the position of each vessel within each port, improving on the historic reporting of movements."

IALA

AISM

# Seasearcher/Lloyd's MIU
## AIS Station coverage

# The reasons to create IALA-NET

**Apart MSSIS, only private/commercial companies monitor the maritime traffic on a global mode. However, traffic monitoring includes security, safety, protection of marine environment and traffic organization missions.**

**Those missions are part of governmental responsibilities and the information used by the Authorities in charge of the missions shall not be dependent of the sole private sector.**

# IALA-NET is an IALA project

1.	Therefore, with the assistance of MSSIS, it was decided to start a trial through a demonstrator to verify the feasibility and the interest of the project to establish a global system of exchange of AIS information between Marine AtoN Authorities.

2.	The demonstrator was provided to IALA and IALA Members free of charge thanks to the generosity of Denmark and the United States.

3.	The trial started in August 2008 and ended the 1st of July 2010 when the IALA Council decided to make the IALA-NET system permanent.

# What is IALA-NET ?

**IALA-NET is a near real time AIS data exchange service through Internet.**

**It is a worldwide service only open to national Authorities who provide the AIS data from their own country.**

**The service is intended to assist these Authorities to fulfill their duties regarding safety, security, protection of marine environment and efficiency of navigation.**

IALA

AISM

# What are the benefits provided by IALA-NET ?

**Here are some examples :**

➢ **Maritime safety**

➢ **Search and Rescue**

➢ **Marine investigation accident**

➢ **Improving efficiencies of navigation**

➢ **Security**

➢ **Illegal activity**

➢ **Traffic analysis**

➢ **Environmental monitoring**

➢ **...**

# Who can access IALA-NET ?

**Access to the IALA-NET data exchange will only be allowed to countries which provide AIS information themselves to the system. Furthermore, in each of these countries, the access to the information will only be permitted to Competent National Authorities, and under their control to those in charge of:**

- **Maritime Safety Administrations**
- **Pollution preventing and combating**
- **VTS(Vessel Traffic Services)**
- **Port State Control (PSC)**
- **Contingency planning**
- **International Ship and Port Security (ISPS)**
- **Search and Rescue (SAR)**
- **Traffic planning, efficiency and management, incl. icebreaking services**
- **Mandatory reporting system and reporting requirements**
- **Pilotage**
- **Customs surveillance**
- **Protection of marine resources**
- **Science and research supporting the implementation of the Helsinki Convention and for preparing IMO ships routeing measures**

# Regarding sharing information with LRIT

**LRIT and AIS are two systems complementary. To totally benefit from the LRIT system a flag State, a port State or a coastal State need to have the latest AIS information available received by a shore based station before the ship had left the A1 area, whatever her location around the world: it will be much more convenient and cheaper for the Authority in charge, when receiving LRIT information, to refer to the IALA-NET AIS data base rather than to exchange messages with the ship to have more detailed information.**

**But LRIT is a very complex and costly machine, with limited information and access …**

# IALA–NET System
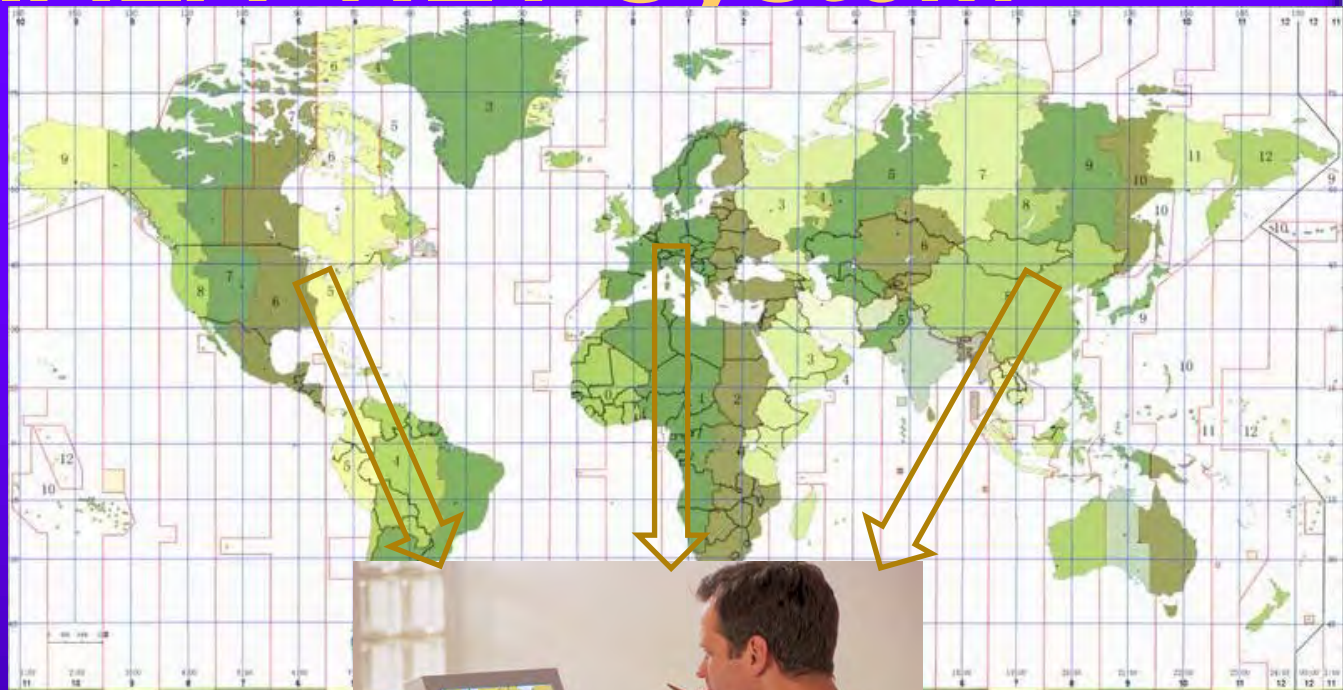


**IALA-NET** uses 3 server centers, evenly spaced in time-zones, to provide back-up and a 24-hour service.

# IALA-NET Global Data Center
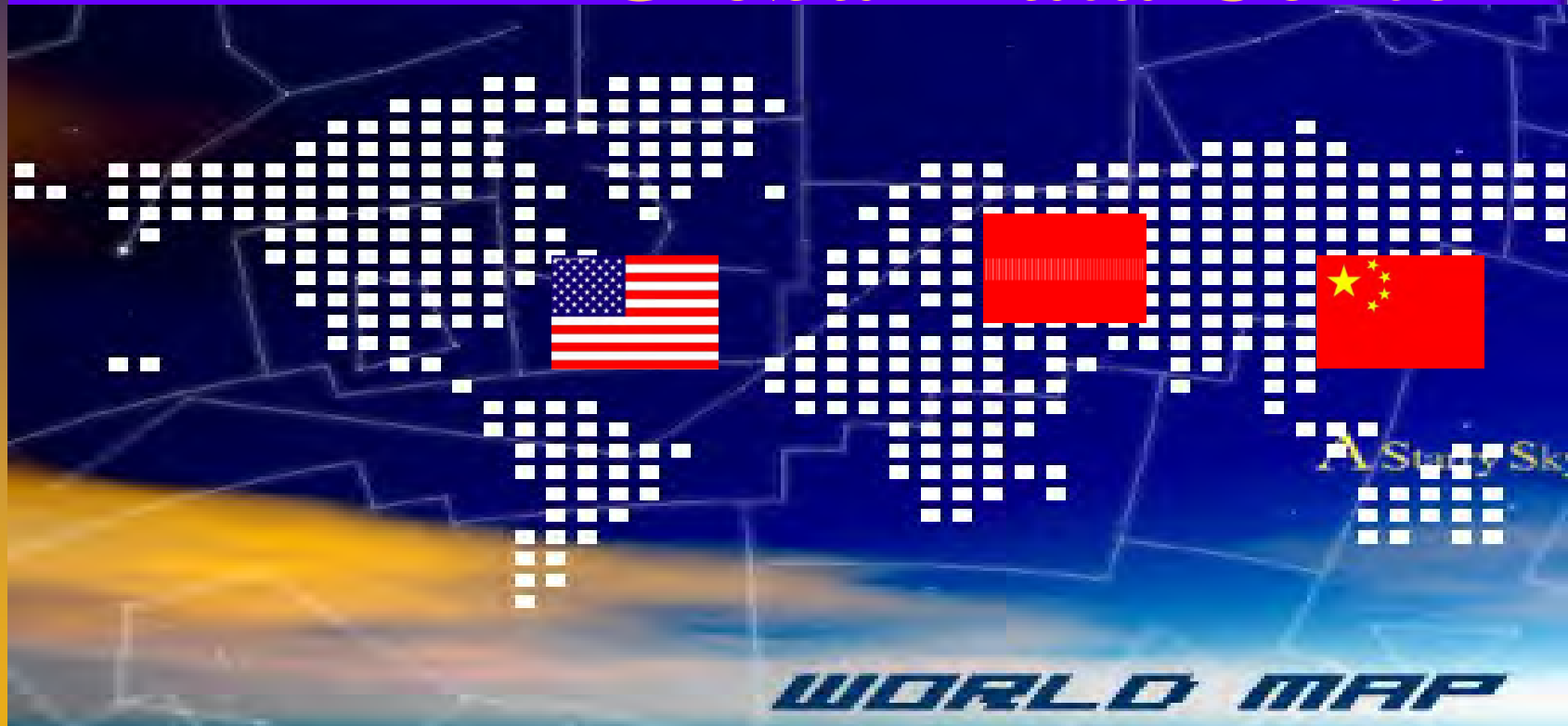


The USA, Denmark and China have agreed to establish each one a Data Center at their own cost. The three servers have the same functions and received the same information, but each one watch the system for eight hours during its working hours to limit the running cost of the system.

# IALA-NET

## What's next?

- ♦ To organise the storage of historical data
- ♦ To develop the system using other sources of information, including satellite AIS, radars, etc...
- ♦ To prepare for e-Navigation

# IALA-NET

**Following countries are on-line or are pending connection**

Denmark - USA - Finland - Montenegro

Norway - Poland - Australia - Estonia

Ireland - Latvia - Oman - China

Chile - Germany - Irak - Jamaica

Scotland - Senegal - Turkey - Vietnam

Canada

Difficulties to recruit participants!

IALA

AISM

# IALA-NET

## Why the participation to IALA-NET is not growing faster?

♦ Lack of knowledge: many people still considered that the AIS information is secret and have not yet realised that anyone can buy it on Internet.

♦ Lack of clear policy on the use of AIS information. At its 79th session the MSC Committee agreed on principles, just after having learned the publication on the web site « AIS-Live » of live AIS information. Since that time the position of MSC/IMO remains unchanged and blocks any discussion on the matter, in particular on the development of AIS Satellite.

# IALA-NET

...At its 79th session, the Maritime Safety Committee decided to:

- "urged masters of ships, notwithstanding the provisions of Guidelines for the on-board operational use of AIS – Resolution A.917(22) as amended by Resolution A.956(23) – not to switch off the ship's AIS on account of the publication on the world-wide web or elsewhere of the AIS data transmitted by their ships;

- urged Member Governments, subject to the provisions of their national laws, to discourage those who make available AIS data to others for publication on the world-wide web, or elsewhere from doing so;

- condemned the regrettable publication on the world-wide web or elsewhere of AIS data transmitted by ships;

- condemned those who irresponsibly publish AIS data transmitted by ships on the world-wide web or elsewhere, particularly if these offer other services to the shipping and port industries; and

- requested the Secretary General to bring to the attention of those who publish or who may publish AIS data transmitted by ships on the world-wide web or elsewhere, the conclusions of the Committee."

# Conclusion

•**Needs to educate on the use and on the potential of AIS information (Model courses?)**

•**Needs to review the policy regarding the circulation of AIS information (Proposal to IMO?)**

•**Needs to promote IALA-NET**

# State of the Art Observations: Maritime Information Systems

Global Maritime Information Sharing Symposium

Baltimore, MD 14-16 SEP 2010

John Mittleman, PhD
Naval Research Laboratory
Washington DC

# Where are we strong…

*UNDERSTANDING*

*KNOWLEDGE*

**INFORMATION**

…

**DATA**

"Foundation for Command"

"reason"

"context"

# And where are we weak?

"existence"

# "Maritime activity is intentionally opaque and convoluted" …

"Internal"
Flag
Owner
Cargo owner
Master
Crew
Agent
Insurer
Indemnity Club
Declared destination
Brief stops
Ship characteristics

…

"External"
Weather
Price of commodities
Port costs
Exchange rates
Restricted areas
High-risk passages

…

# "WHY" is Complicated
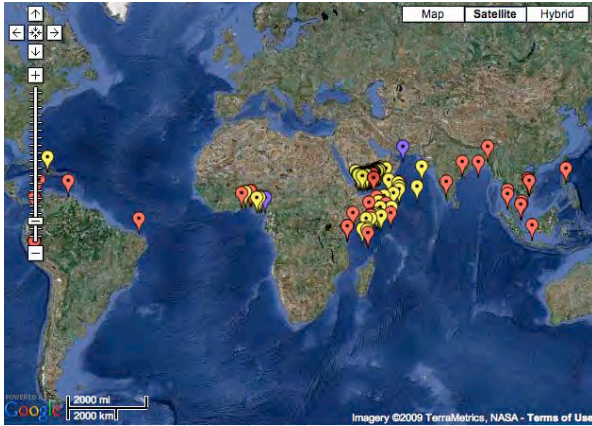
# "WHY" is Complicated

# "WHY" is Complicated

Conceptually:

$$F(x,y,z,...)$$

Can you solve this knowing only "x"?

*A Pooled Information Environment is absolutely*

# "WHY" is Complicated

Is it $F(x,y,z)$ ?

... or is it $F(x,y,z \ and \ w)$ ?

*Modeling Maritime Activity is absolutely*

# "WHY" is Complicated

# Vessels, Cargo, People, Infrastructure
are not enough.

External drivers include everything that determines
# Profit or Loss

*Commercial sector Knowledge is absolutely*

# How are we doing?
## Existence Data - availability

- Military Systems:



Global reach and local, generally *classified*
Defense oriented

# How are we doing?
# Existence Data - availability

- Civil Systems



Shore-based, internationally *interdependent* Safety and Security oriented

# How are we doing?
# Existence Data - availability

- Commercial Systems



Courtesy of SpaceQuest

Global reach, internationally *independent*
Profit oriented

# Commercial Space – A Sea Change



Shore-based AIS

Space-based AIS
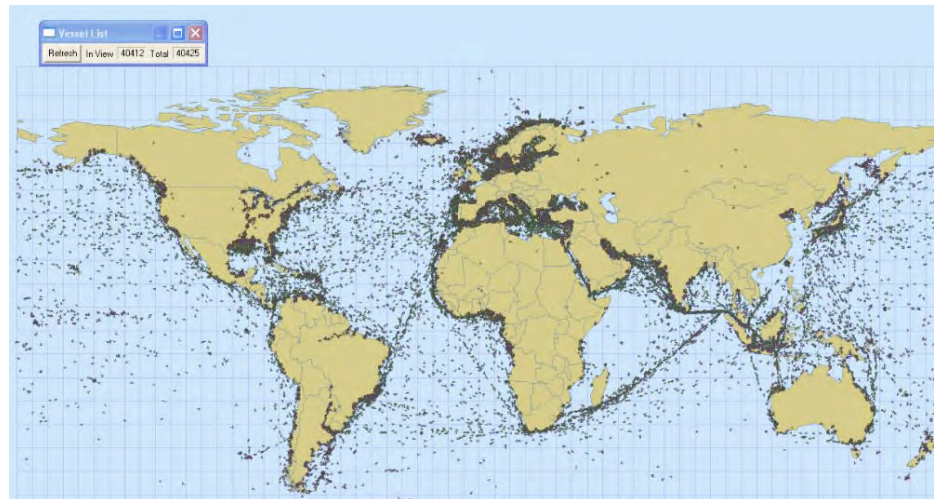
# How are we doing?
## Existence Data – AIS and Radar

- Coastal AIS and radar



Pink Circles are radar contacts from Pilot launch

Airplane icons are from ADSB
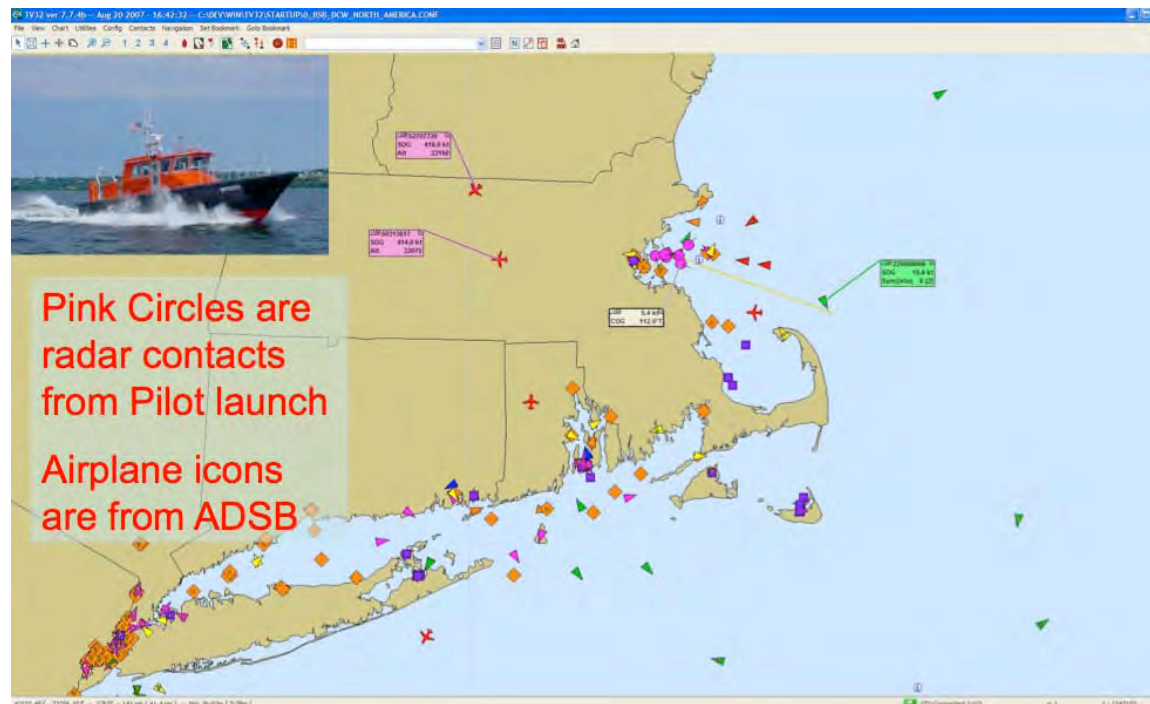
Courtesy of Volpe Center

Shore-based, limited Over the Horizon capability

# How are we doing?
# Existence Data – AIS and Radar

- Ships' AIS and Radar Contact Reporting
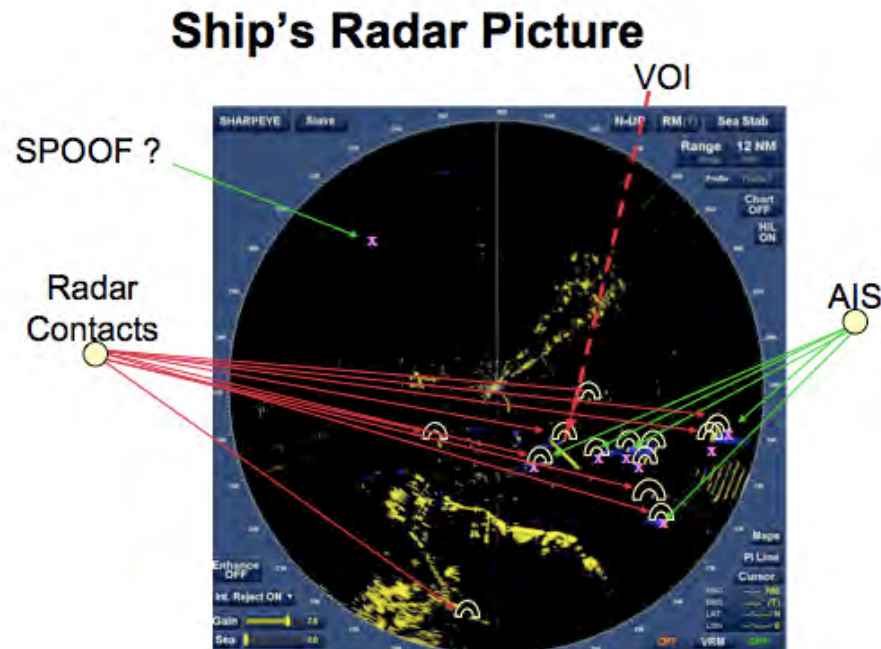


Extends reach of shore-based systems
Engages commercial sector

# How are we doing?
# Existence Data – AIS and Radar

- Space-based AIS and Synthetic Aperture Radar
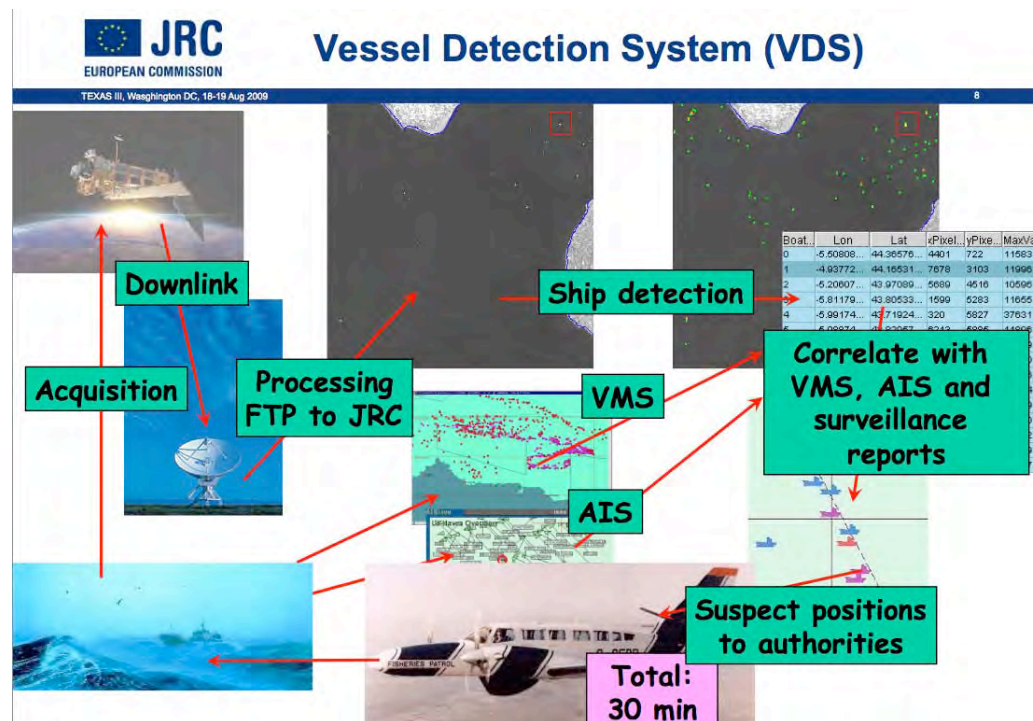


Courtesy of JRC

Global reach
Wide area, useful for search and law enforcement

# Commercial Space
## A Tool for  Governance

Space-based SAR



Courtesy of TerraSAR

Space-based AIS and SAR



Courtesy of MDA

# New types of Existence Data
## Wide area / High resolution optical imagery



Oil Salvage & Recovery Vessels
Coordinates: 28-44-27 N / 088-21-57 W

DigitalGlobe WorldView-2
Coverage May 2, 2010

Courtesy of DigitalGlobe

# New types of Existence Data
## RFID for Small Vessel Tracking
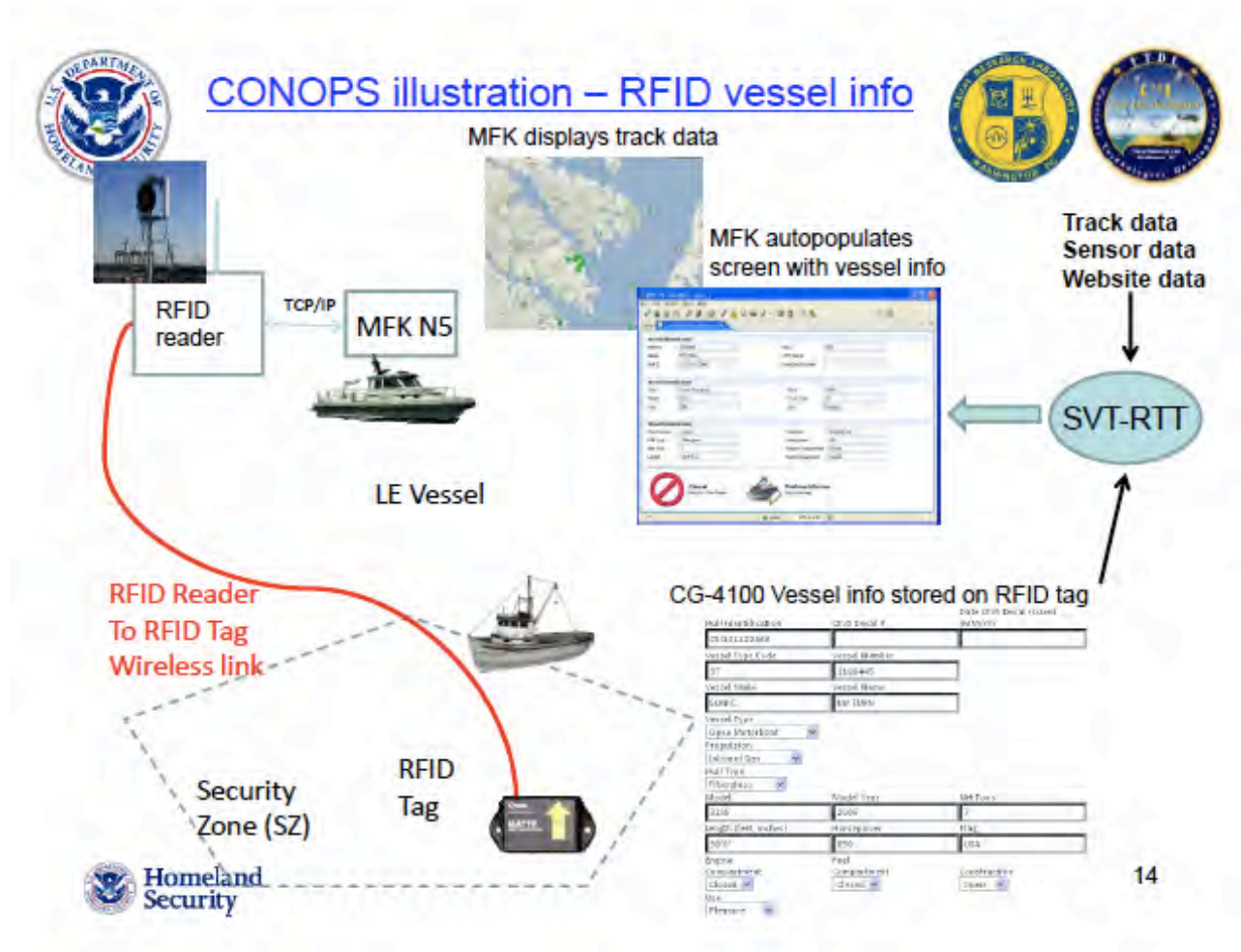
# How are we doing?
# Existence Data

What's the question? …

which vessels should we know about?
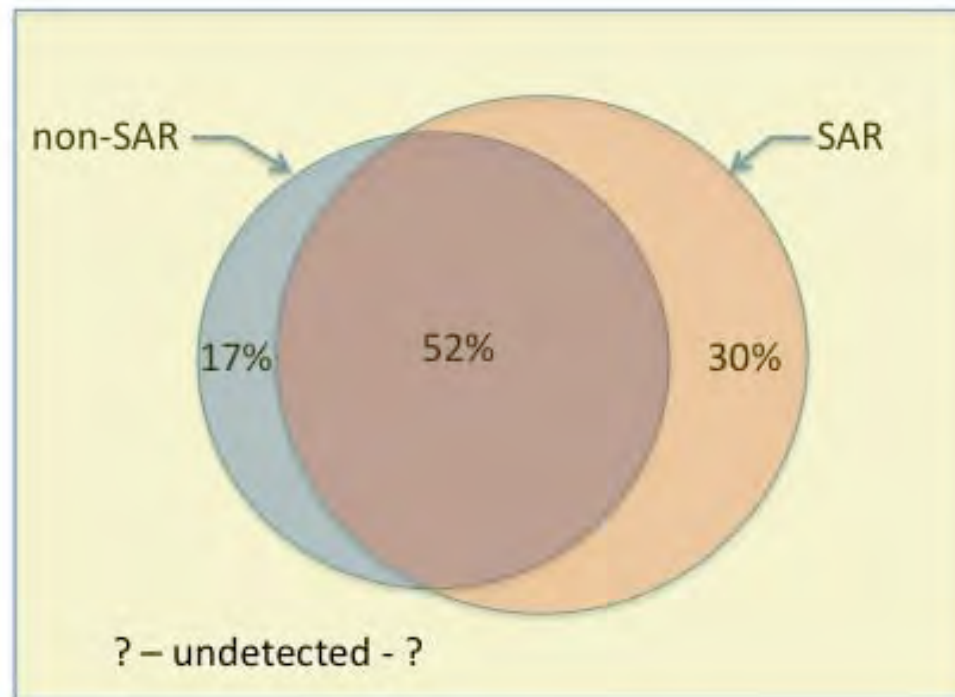
# How are we doing? Information

- *Current Focus:*

  Multi-source track fusion

- *Future Understanding:*

  Associated Information, Behavior, and Network Relationships

# How are we doing?
# Track Fusion

## SeaLink Advanced Analytics



- Authoritative global maritime ship tracking
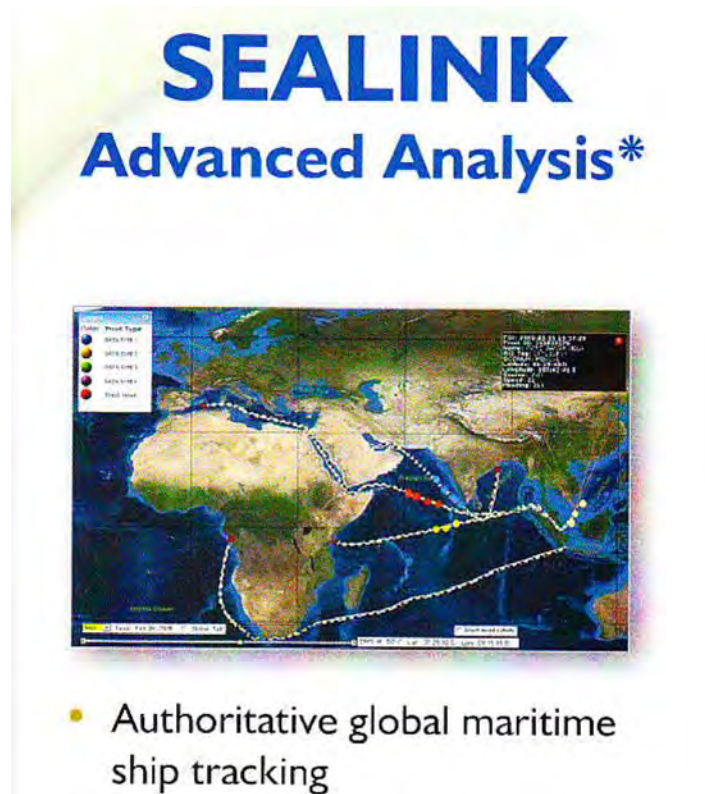
Courtesy of ONI

# How are we doing?
# Associated Information

Dynamic Enterprise Integration Platform
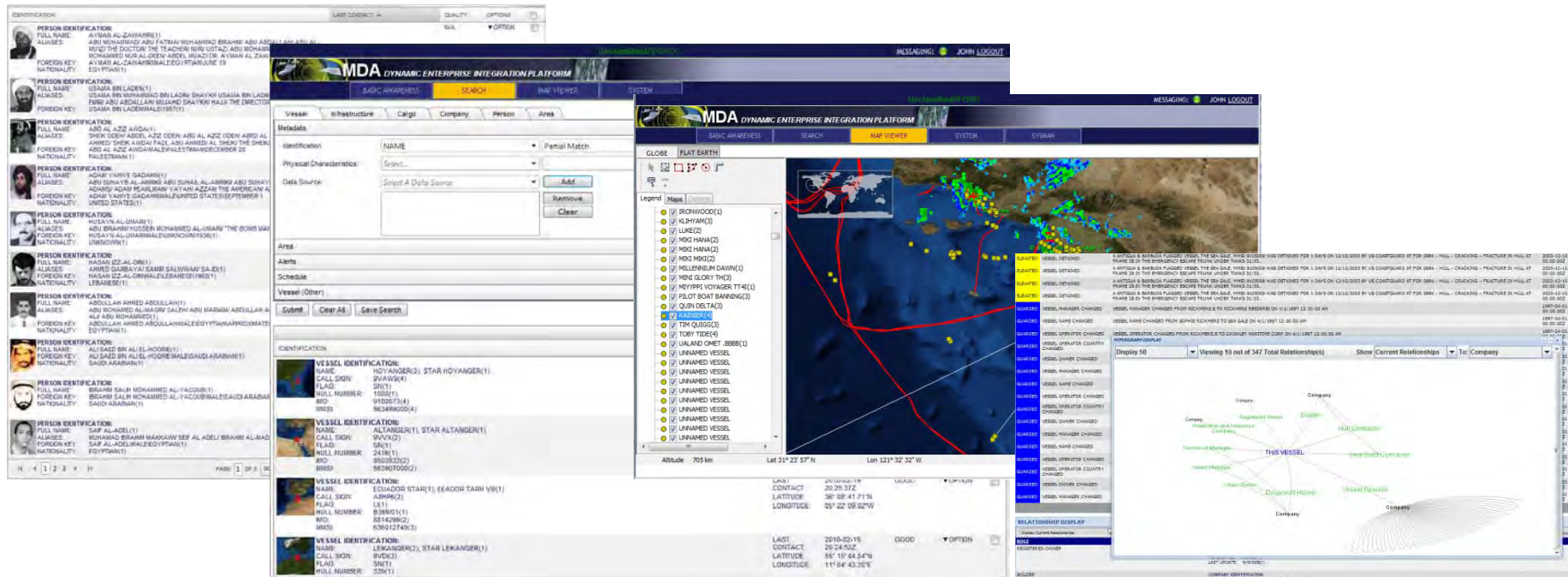


Scale*: Centralized storage and computing*

Subject Matter Expertise: *Centralized R&D*

# How are we doing?
# Associated Information
## Information Integration Pilot



**Widgets**
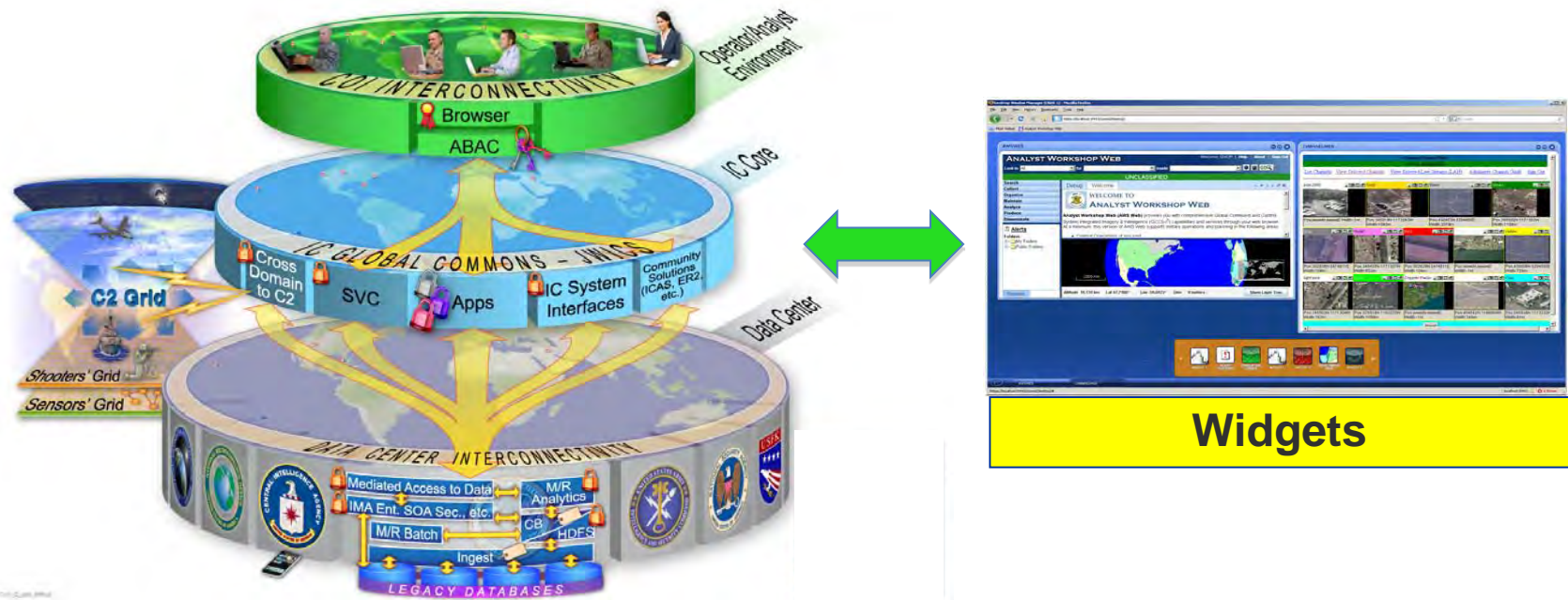
Scale*: Distributed Storage and Computing*
Subject Matter Expertise: *Modular Analytics*

# How are we doing?
# Behavior

## Predictive Analysis for Naval Deployment Activities
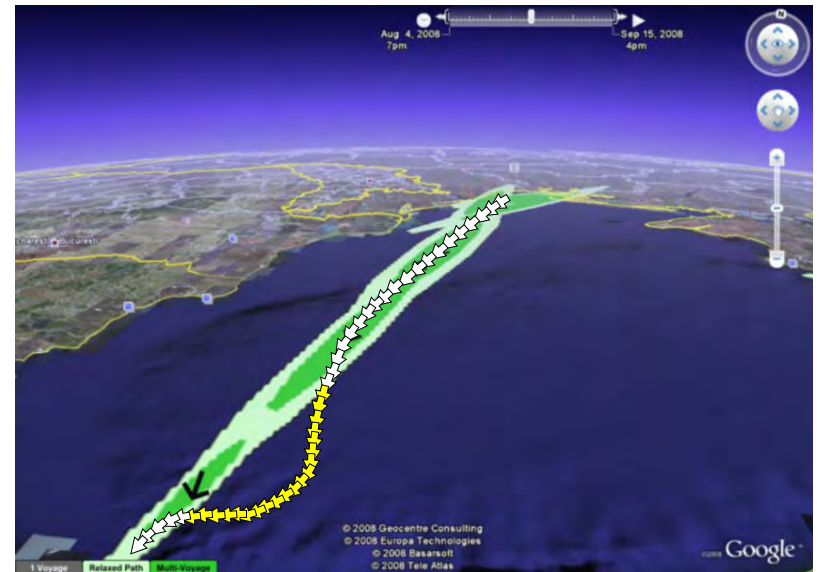


Scale*: Tens of thousands of ships*

Subject Matter Expertise: *Learned from identified tracks*

# *Key Enabling Technologies*

Cloud storage promotes:
- Information sharing
- Huge span of available information

Cloud computing promotes:
- High volume, high speed analysis
- Machine-to-machine interagency sharing

Widget technology promotes:
- modeling with increments of knowledge
- wide engagement for developing algorithms

Attribute-based Access Control promotes:
- sharing with responsible data stewardship

# How are we doing?
# Knowledge
## Computer Assisted Maritime
## Threat Evaluation System
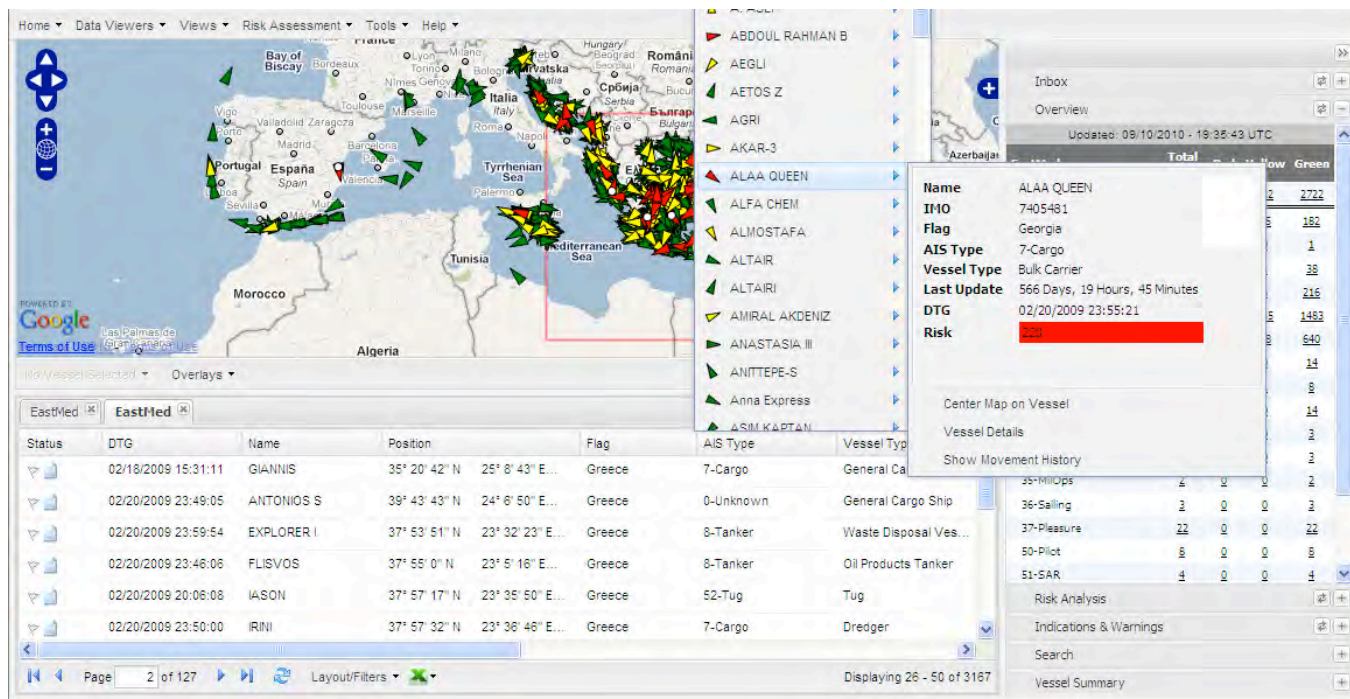


## Rules-based threat Assessment

# How are we doing? Knowledge

Government Research: Using context to update normal behavior or explain reasons for deviations: "Context-based Prioritization"

Academic Research: for example: "The complex network of global cargo ship movements"
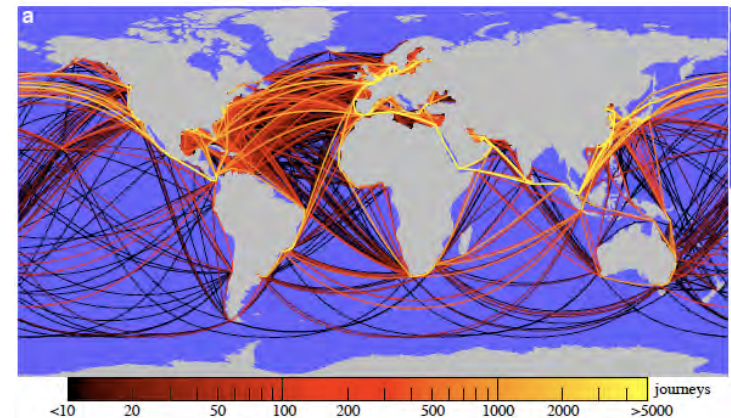
# Summary

- DATA: we're doing well with cooperative vessels, getting better at non-cooperative vessels and related information

- INFORMATION: we're doing well at track fusion and correlating related data with vessels

- KNOWLEDGE: we're just beginning to develop high-speed, high-volume algorithms for sense-making

# Summary

WHAT WE NEED:

- More Types of Data in a Pooled Information Environment

- Models for Maritime Activity and a Knowledge Framework

- Commercial Partners' Knowledge

# Discussion
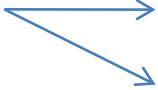
# MARITIME INFORMATION SHARING IN THE EU

A first step toward an integrated maritime security policy

By

VADM (ret) Ferdinando SANFELICE di MONTEFORTE

# EU APPROACH TO ISSUES

* Need for consensus (27 MSs ⟶ 28)

- History: CECA, EURATOM, EEC, EU, CSDP (after 500 years of war, only a construction brick by brick was possible)

- Bottom-up approach to issues (step by step)

- Uneven pace in progresses

- Two poles in EU ⟶ EU COUNCIL (Member States)
  ⟶ EU COMMISSION (treaty Enactment)

# SECTORAL APPROACH

- Law Enforcement at sea

- Fishery Control

- Border Surveillance

- Environmental Safeguard (Pollution)

- Navigation Safety

11 Systems
MOU between EMSA, FRONTEX, CFCA (December 2009)

# MAJOR DECISIONS

- INTEGRATED MARITIME POLICY (IMP) $\longrightarrow$ MDA

- ROADMAP $\longrightarrow$ COMMON INFORMATION SHARING ENVIRONMENT

- PILOT PROJECTS $\longrightarrow$ REGIONAL APPROACH (60% - 40%)

(MARSUNO, BLUEMASSMED)

EU AHEAD OF MEMBER STATES (INTEGRATION)

# PROBLEMS

- LACK OF NETWORKING MINDSET IN THE MEMBER STATES
  - * Coordinating Agencies
  - * Round Tables

- NEED TO HARMONIZE MILITARY SECRET, JUDICIAL CONFIDENTIALITY, COMMERCIAL SENSITIVITIES
  - * Exchange of non-sensitive data
  - * Supporting-Supported      (Mutual Help)
  - * Responsibility to Provide    (Danger of INFO Withholding)

- DIFFERENT STAGE OF DEVELOPMENT BETWEEN LEAs  and  CSDP

- AREAS  of RESPONSIBILITY  (TTWs and OUTSIDE)

# HIGHWAYS of the SEA

- MARITIME   SCHENGEN

- REDUCED  PAPERWORK  FOR  INTERNAL  EU  SEATRADE

- RISK  OF  INTERMEDIATE  PORT  CALLS  OUTSIDE  EU

STRONG  AND  EFFECTIVE  MDA  ENVIRONMENT

# Ocean Law and Policy/UNCLOS

Dr. John T. Oliver, Senior Ocean Policy Advisor, U.S. Coast Guard Headquarters
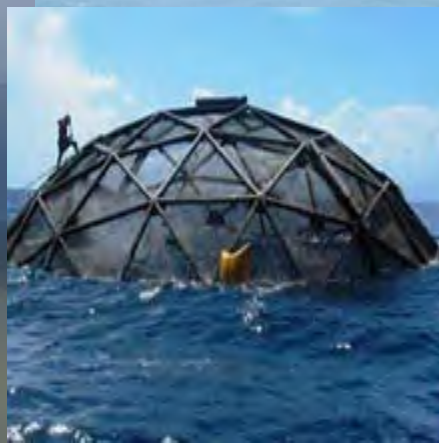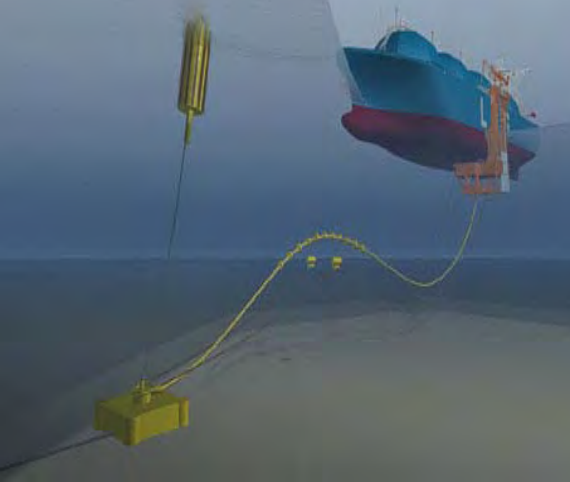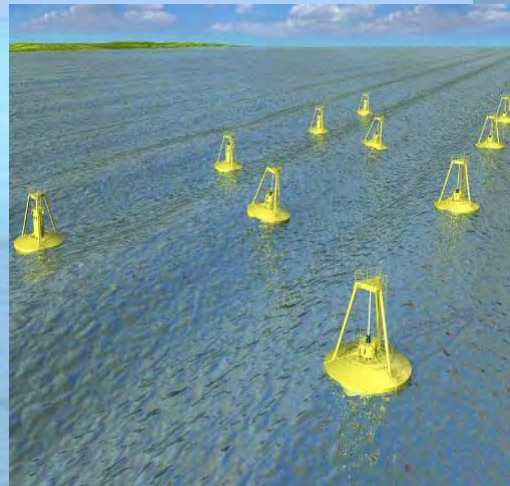
# Overview of Presentation

- Nature of the Challenge and Opportunities
- Interagency Ocean Policy Task Force
- National Ocean Policy
- Improved Information
- Coastal and Marine Spatial Planning
- The 1982 UN Convention on the Law of the Sea
- Questions/Comments

# Challenges and Opportunities

- Oil, toxins, nutrients, debris, and other pollutants threaten all ocean ecosystems

- Warming waters and acidification are impacting maritime functions

- Coastal communities are facing sea-level rise and storm surges

- Decreased biodiversity from overfishing and invasive species

- Ever increasing human uses, both for good and ill

# Interagency Ocean Policy Efforts

- President Obama set up the Interagency Ocean Policy Task Force in June 2009.

- He directed the Task Force to deliver a national ocean policy and framework for coastal marine spatial planning.

- Some 24 Federal agencies made up the Task Force.

- Held dozens of public hearings and workshops; over 100 "expert roundtables" and stakeholder sessions.

- Six national public hearings in key regions.

- ADM Allen represented the Secretary of DHS. Coast Guard has been fully involved in the entire process.

- Final Recommendations approved in Executive Order.

# Vision Statement

An America whose stewardship ensures that the ocean, our coasts, and the Great Lakes are healthy and resilient, safe and productive, and understood and treasured so as to promote the well-being, prosperity, and security of present and future generations.

It is the Policy of the United States to:

*   *   *   *

(viii) increase scientific understanding of ocean, coastal, and Great Lakes ecosystems . . . , including their relationships to humans and their activities;
(ix) improve our understanding and awareness of . . . human activities taking place in ocean, coastal, and Great Lakes waters; . . . .
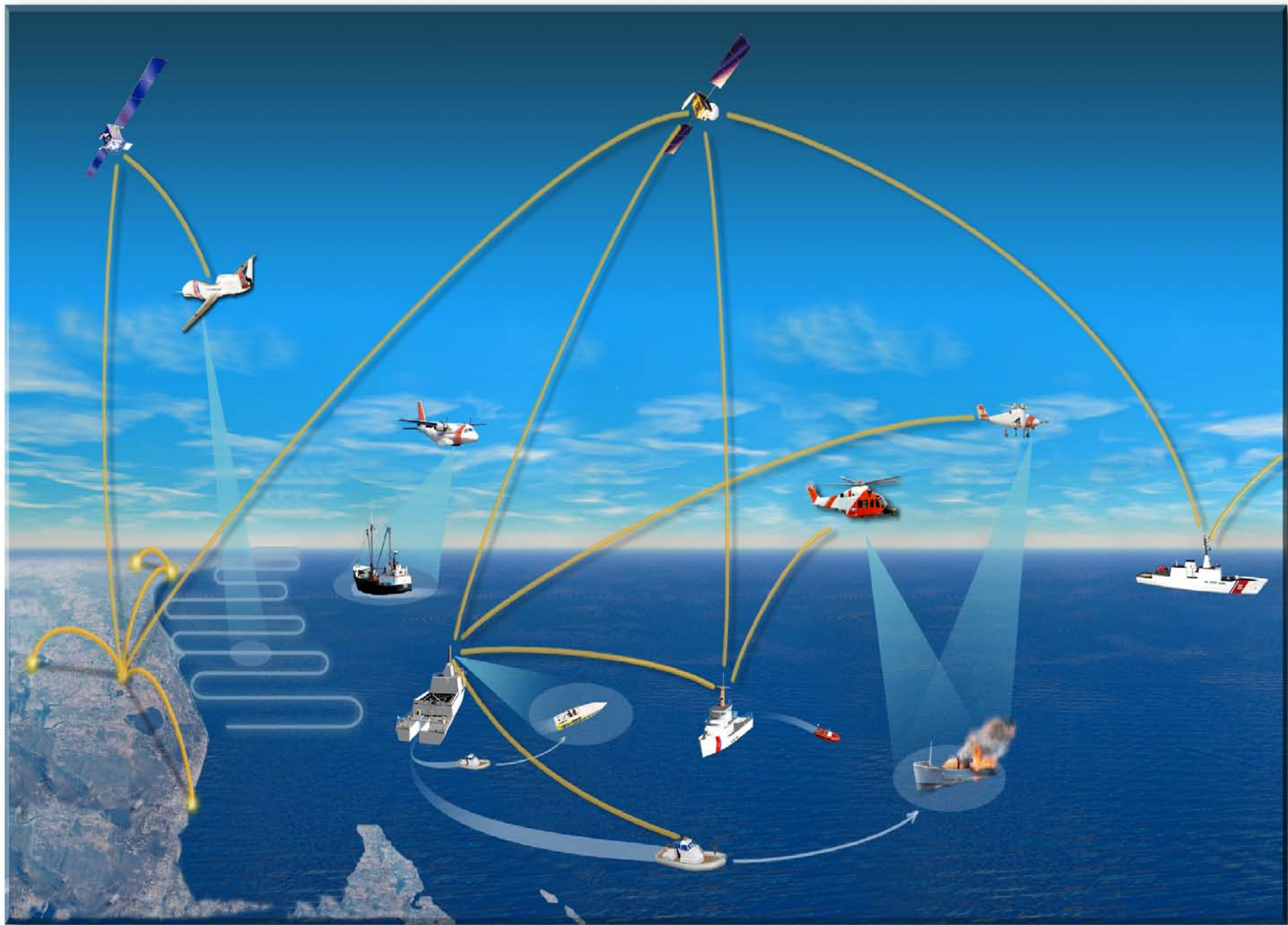
# Improved Governance Structure

**National Ocean Council**
Cabinet-level Membership
Co-chairs:  OSTP  and CEQ

Steering Committee (Director, CEQ, OSTP, IPC Chairs)

Governance Coordinating Committee (Regional, State, Tribal)

Ocean Research & Resources Advisory Panel

National Security Council

Office of Energy & Climate

National Economic Council

Ocean Resource Management Interagency Policy Committee

Ocean Science & Technology Interagency Policy Committee

# Alaska's Marine Ecosystem

# What is Coastal and Marine Spatial Planning?

"[CMSP is a] comprehensive, adaptive, integrated, ecosystem-based, and transparent process, based on sound science, for analyzing current and anticipated ocean, coastal, and Great Lake areas . . . that allows forward planning to integrate a wide range of ecosystem services."

# Why Coastal and Marine Spatial Planning?

## Why?

## Drivers

- Promote more efficient use of ocean resources and space

- Lack of clear national policy direction, confusing and overlapping jurisdiction, fragmented laws

- Oceans currently managed by over 140 different Federal laws and implemented by 18 different Federal agencies

# A Regional Framework for CMSP

- The Council would work with the States and and federally-recognized tribes to create regional planning bodies to develop regional CMS Plans
- National objectives; regional plans
- Nine proposed regions, aligning with large marine ecosystems and existing structures
- Building on existing efforts (e.g., ocean observing organizations, State plans)

# Large Marine Ecosystems and Nine Regional Planning Areas



Large Marine Ecosystems and Regional Planning Areas

**Legend**

US Exclusive Economic Zone (EEZ)

Regional Planning Areas

Large Marine Ecosystems

Regional Planning Areas have been approximated for illustrative purposes only and should not be construed as a legal or official boundary of any kind.

*Courtesy of NOAA*
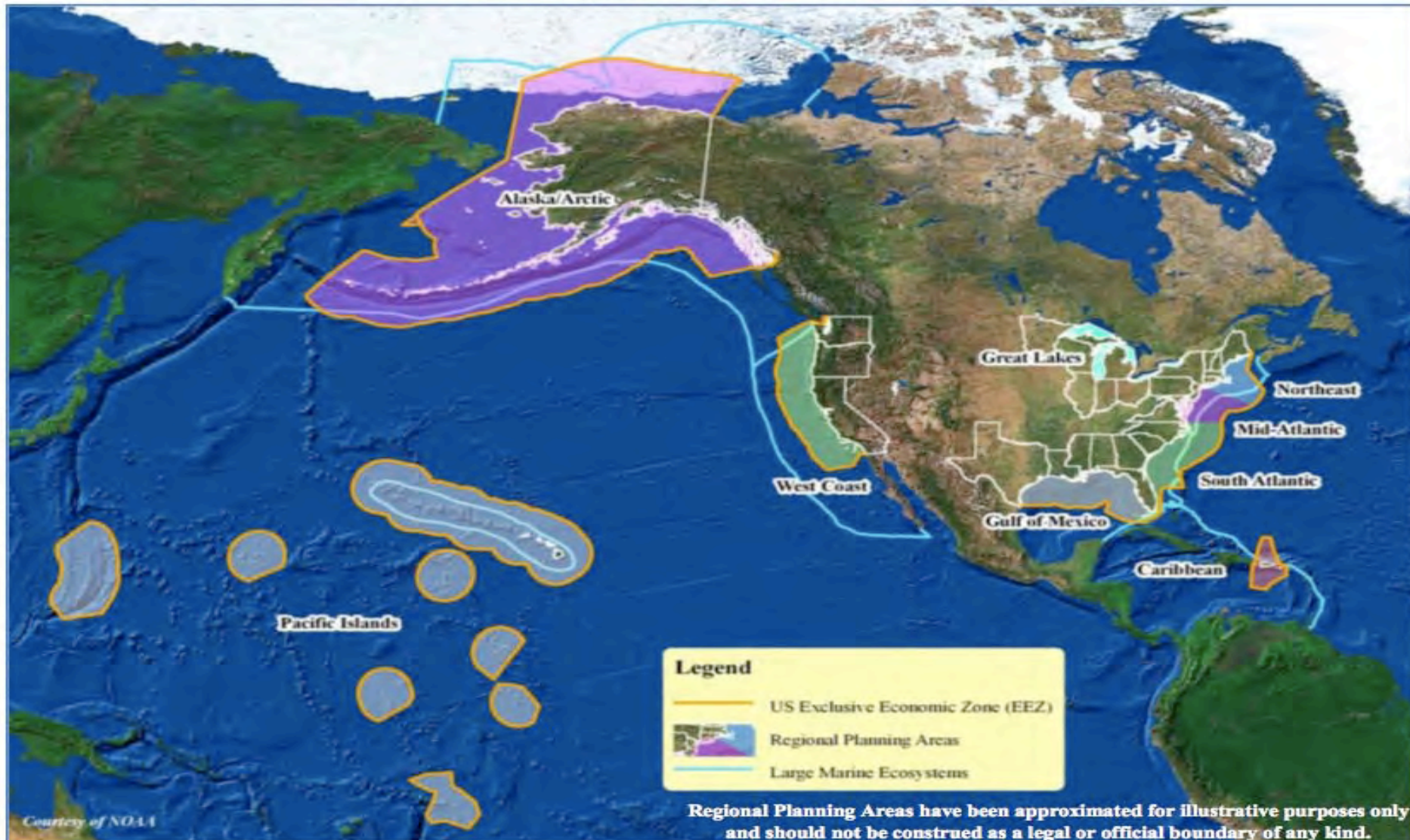
# Australia's Great Barrier Reef





GREAT BARRIER REEF
General Reference Map
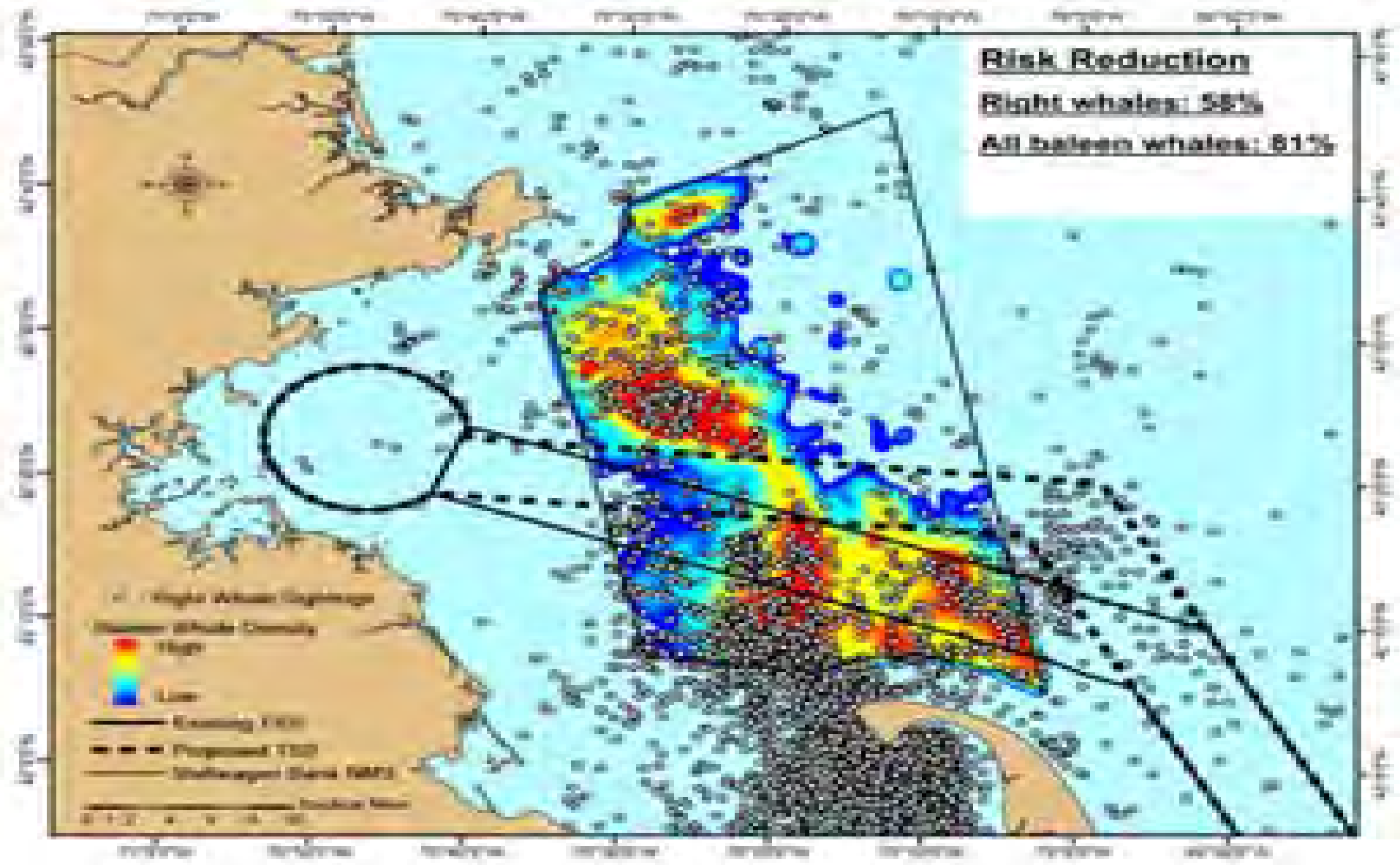
# Why the Law of the Sea is Important – Collision in Disputed Arctic Waters on Feb. 11, 1992
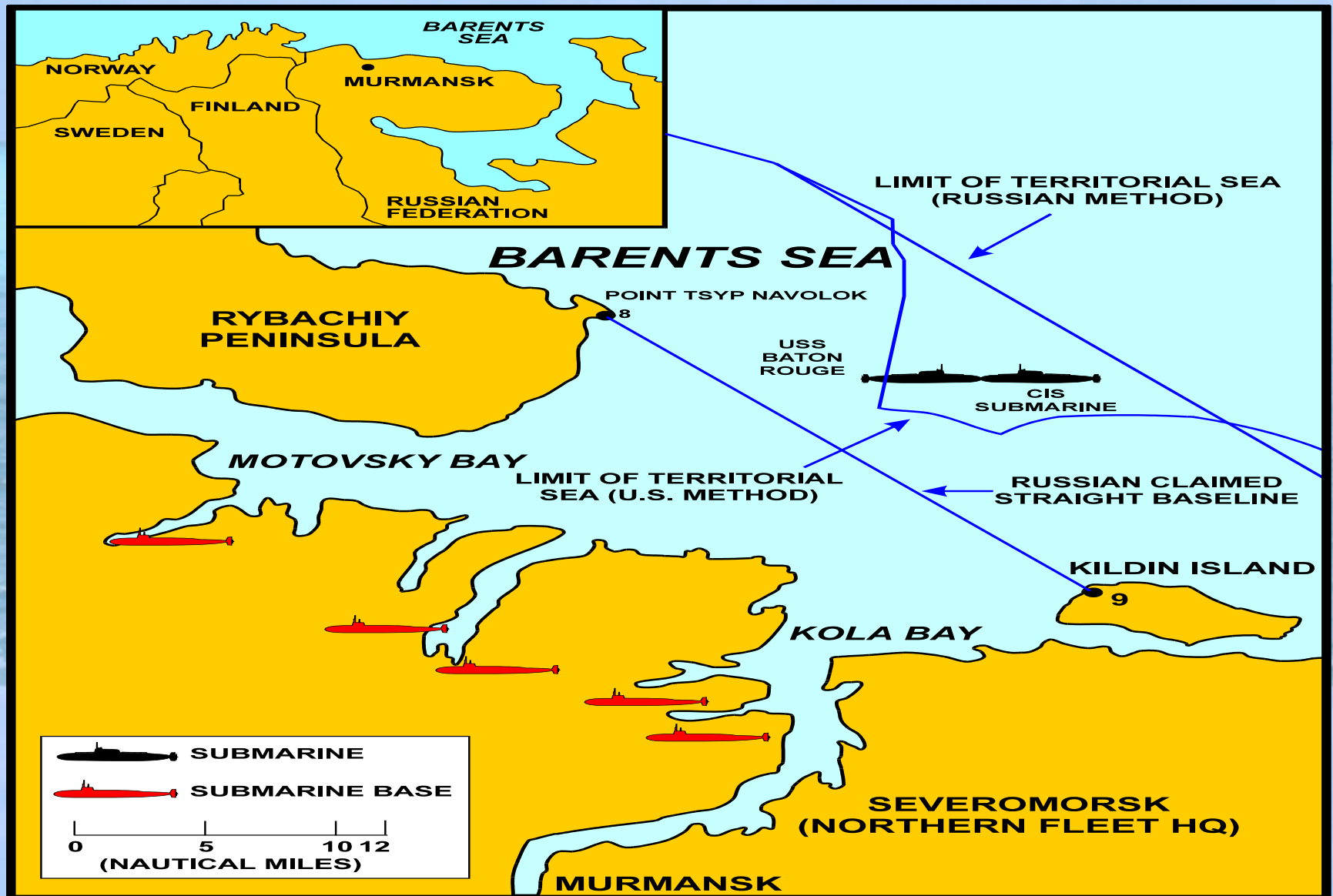
# U.S. Oceans Policy Statement, President Reagan, March 10, 1983

- Because of "fundamental flaws" in the deep seabed mining provisions of the UN Convention on the Law of the Sea, the U.S. decided not to sign the treaty.

- However, President Reagan stated in March, 1983, that the navigational provisions "confirm existing maritime law and represent a fair balance of interests of all nations."

- Therefore, he maintained that the U.S. would respect claims consistent with the Convention, and would act in accordance with its rights under the navigational provisions.

# 1982 UN Convention on the Law of the Sea

- MOBILITY INTERESTS in, over, and under the ocean
  - Freedom of navigation for military and commercial users
  - Transit passage on, over, and under international straits
  - Operational freedoms in international waters

- SOVEREIGNTY AND RESOURCE INTERESTS
  - Sovereign immunity of warships and military aircraft
  - Enable U.S. to claim an extended continental shelf
  - Provides guidance for resolving maritime boundary disputes

- CONFLICT AVOIDANCE INTERESTS
  - Sets comprehensive rules on the various uses of ocean space
  - Provides for dispute settlement
  - Sets positive global precedents
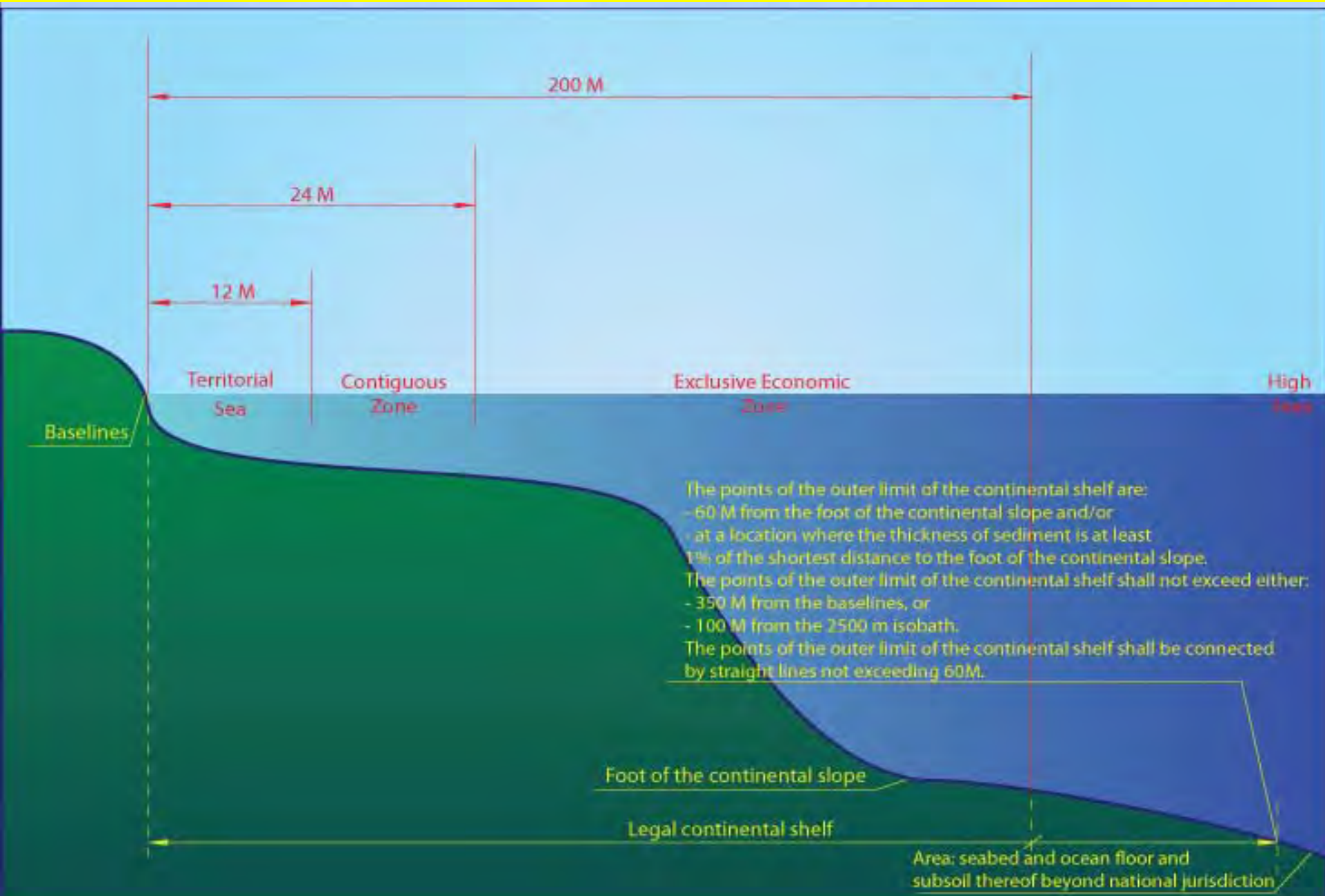
# Questions or Comments?



All Threats.  All Hazards.
Always Ready ("*Semper Paratus"*).

# We are America's Maritime Guardians!

# LEGAL REGIMES OF OCEANS AND AIRSPACE AREA
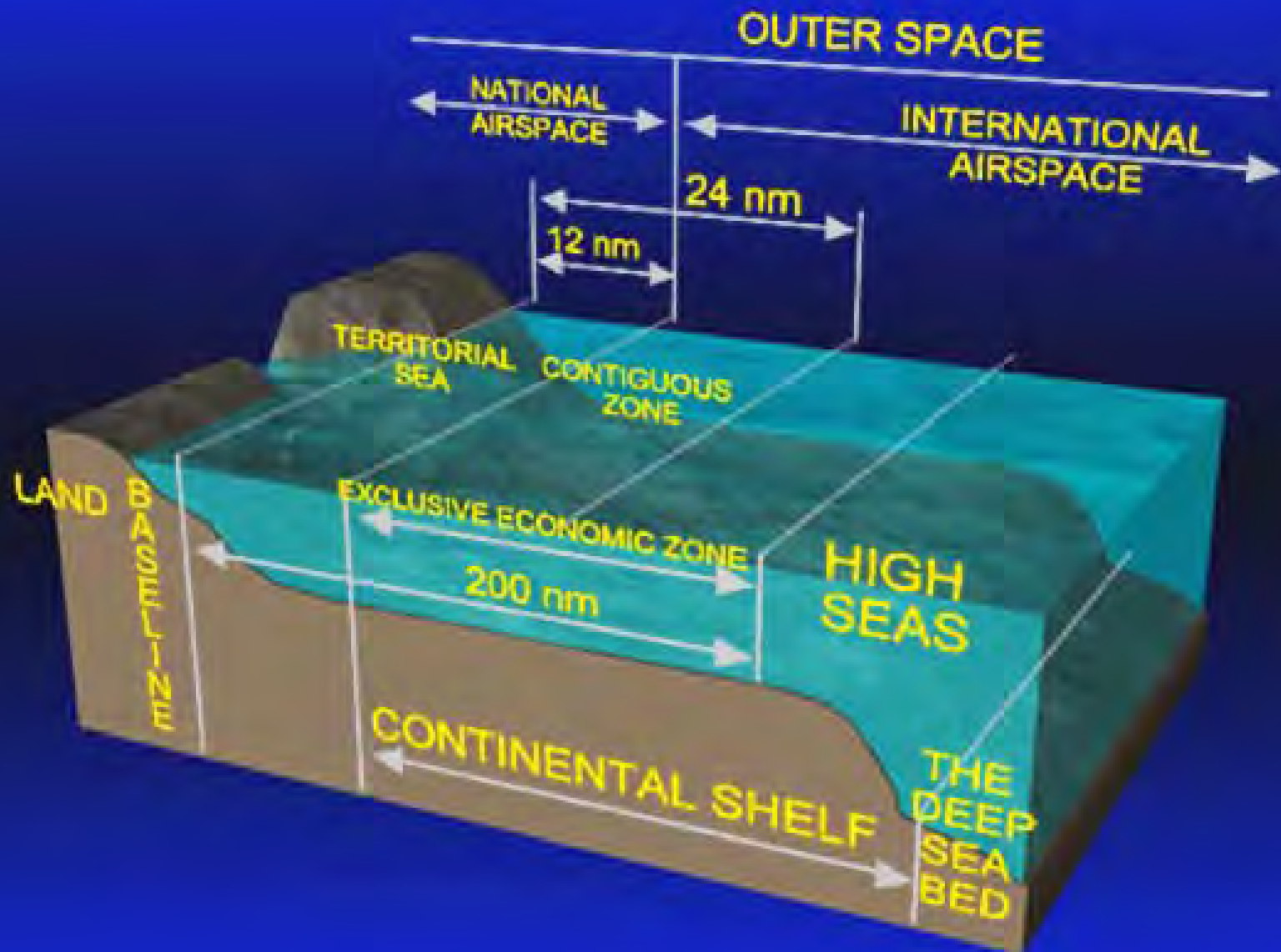
# *Canada–United States Interagency Maritime Information Sharing Forum*

*Briefing to*
*Global Maritime Information Sharing Symposium*

**Captain(N) Kurt Salchert, CF**
**Division Chief, NORAD J32**
**14 September 2010**

# *Common Interests*
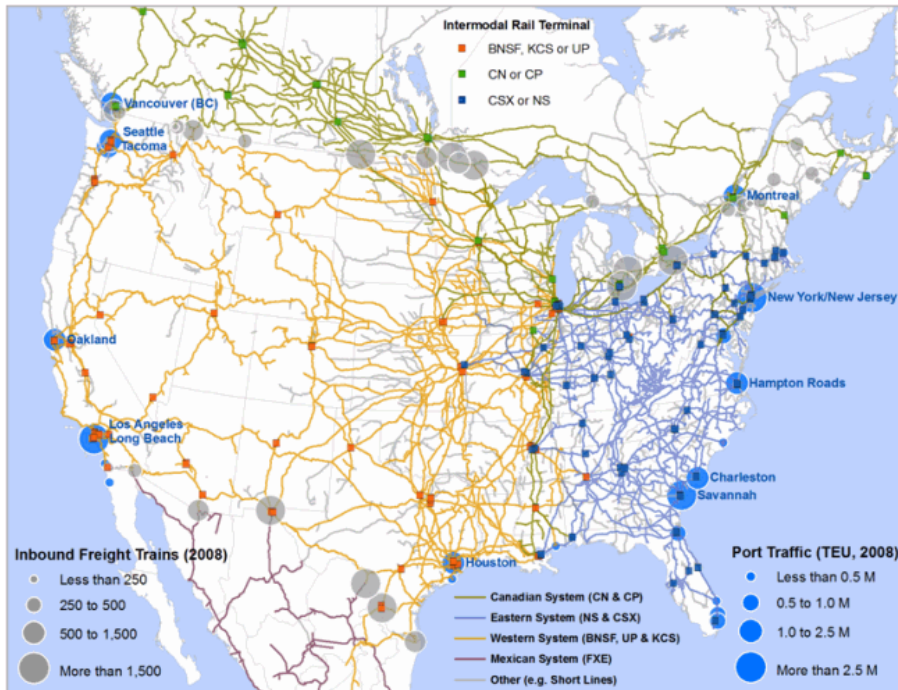


Reproduced with permission from Dr. Jean-Paul Rodrigue, Hofstra University
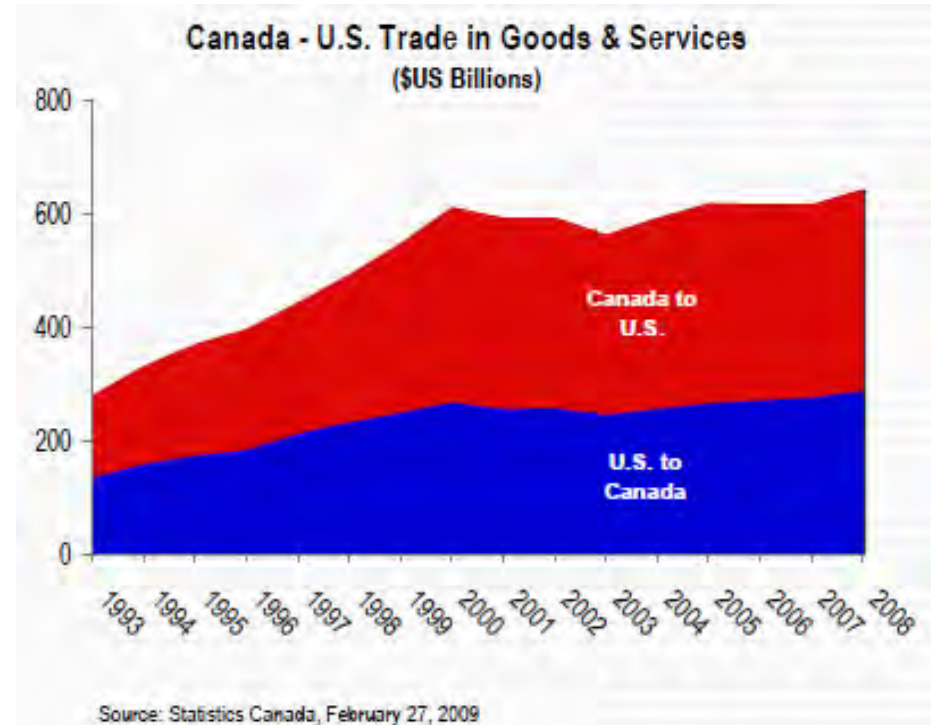


## Maritime Nations

- **200,000 miles of coastline and 25,000 miles of navigable waterways**
- **80% of all foreign trade enters Canada and US by sea**
- **378 major ports & 60,000 ports of call/year to Canada and US**
- **13,000,000 containers arrive per year**
- **Highly integrated multi-modal transportation networks spanning North America**
- **$675 Billion in bilateral trade is the largest in the world**

# *Common Interests*



**North American Gas Pipeline Grid**



① Canada is the state's #1 export market
② Canada is the state's #2 export market
③ Canada is the state's #3 export market

| | |
|---|---|
| over 300,000 jobs | 75,000 – 99,999 |
| 200,000 – 300,000 | 50,000 – 74,999 |
| 150,000 – 199,999 | 30,000 – 49,999 |
| 140,000 – 149,999 | 20,000 – 29,999 |
| 100,000 – 139,999 | 10,000 – 19,999 |
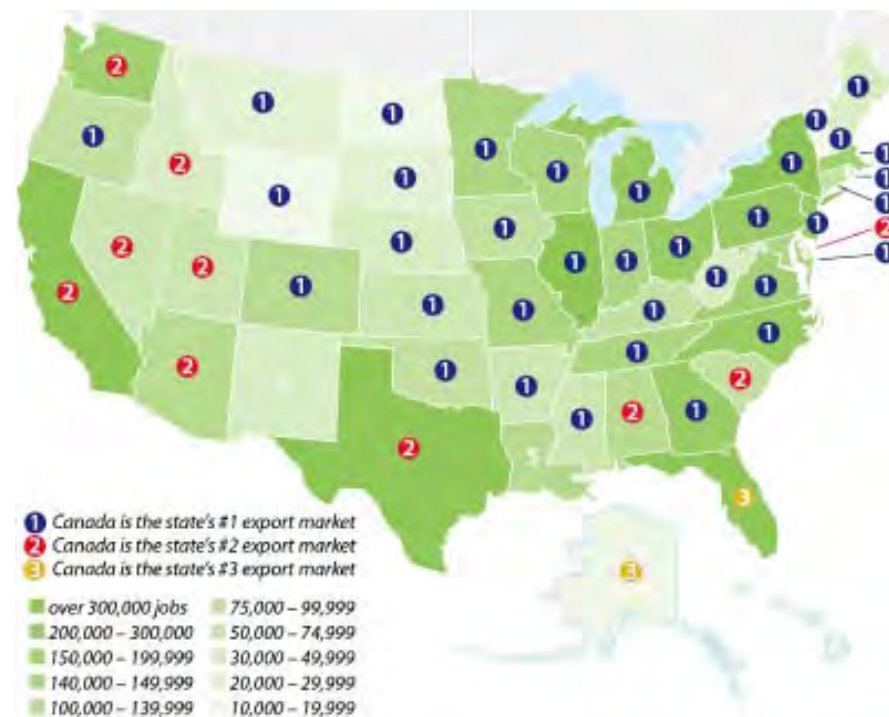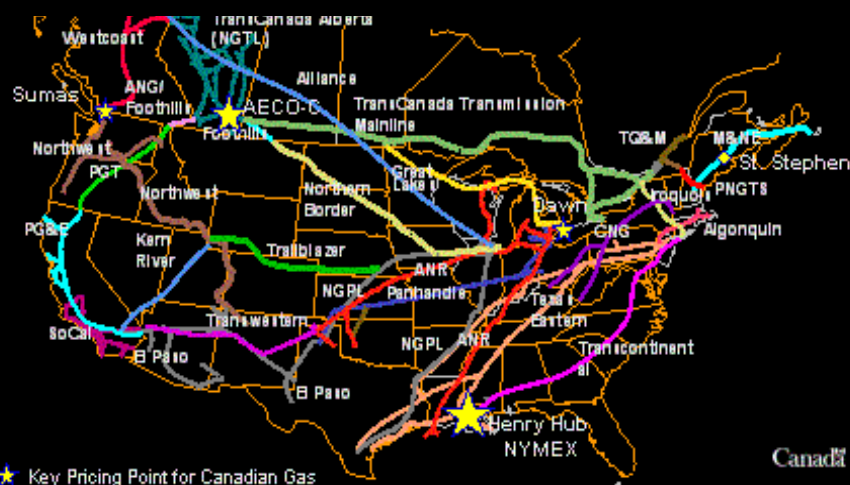
## World's Largest Bilateral Trade Arrangement

- **Canada is top export market for 35 U.S. States**
- **Canada-U.S. trade supports over 7 million American Jobs**
- **Canada is largest supplier of energy**
- **92% of Canadian energy exports go to U.S. markets**

# *CANUS Maritime Stakeholders Conference - Challenges*

- No single synchronizer/integrator to steer the overall information sharing efforts of the many Canadian and US organizations pursuing MDA

- Lack of awareness of legal authorities, mandates and jurisdictions of the numerous Canadian and US organizations involved in maritime security

- Absence of (or lack of awareness of) policy guidelines to define the threshold to share information cross-border and  between organizations

- Lack of clearly defined and shared critical information requirements between key partners

- Lack of standardized collaboration processes and common lexicon

- Inability to readily access multi-domain, multi-agency and multi-classification level information due to numerous, complicated and often ad hoc network architectures

- Lack of an integrated "intelligence to warning to response" process to provide a comprehensive approach to coordination

- Collaboration with the private sector is vital but remains fragmented

# *CANUS Maritime Stakeholders Conference - Enablers*

- Draw on our common interests to provide the impetus for collaboration (democratic values, history, culture, integrated economies, networked multi-modal transportation systems and shared critical infrastructure)

- Share best practices to develop organizational structures and integrated maritime operations and intelligence fusion centers where possible

- Build on current bi-national interagency Vessel of Interest lexicon to explore development of shared Watch Lists

- Expand network of  existing liaison/exchange personnel

- Incorporate best practices such as "write for release" or "tear lines" to enable rapid dissemination across multiple releasability levels

- Capitalize on emerging technologies in Information Management and Knowledge Discovery

- Leverage existing secure conferencing procedures between the US and Cdn Defense Red Switch Networks to create a dedicated CANUS interagency maritime conferencing procedure

- Leverage interest to develop a CANUS MDA governance structure

# Purpose & Objectives

- **<u>Purpose</u>:** To enhance national and bi-national MDA objectives and activities through increased collaboration and improved awareness between the governments of Canada and the United States.

- **<u>Objectives</u>:**

  1. Identify the common interest issues that exist between Canada and the United States related to Maritime Domain Awareness.

  2. Discuss a proposed way ahead (structure, governance, periodicity of meeting) to address these common interests.

*Canada–United States Interagency MDA Forum*

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

GLOBAL SPACE PARTNERSHIP

C-SIGMA

Collaboration in Space for

*For International Stewardship of the Maritime Environment and its Resources
*For Maritime Safety                    *For Security

Global Maritime Awareness

Photo Courtesy of MDA

Guy Thomas        george.g.thomas@uscg.dhs.gov

# C-SIGMA

\#  <u>P</u>roviding Environmental Monitoring*

\# <u>I</u>ncreasing Security*

\# <u>E</u>nabling Safety Efforts*

\# <u>G</u>uarding Natural Resources*

- Fish

- Energy

- Mineral

*<u>Maritime & Otherwise</u>*

**GLOBALLY!**

# C-SIGMA

\#  <u>Not</u> a Program

\# <u>Not</u> a Canned Solution

\# <u>Not</u> Even a Proposal

\# Governance is <u>NOT</u> Discussed

\# Is an Technology Examination

\# Is an <u>Awareness Effort</u>

A Call to Action!

-

# C-SIGMA



LiMES

- **Special Thanks to:**
  - * **CSTARS** – University of Miami
    - * MacDonald Detweiler & Associates (MDA)
      - * Johns Hopkins University/Applied Physics Lab (JHU/APL)
        - * Ball Aerospace
          - *DLR

# C-SIGMA Concept

## USE TODAY'S COMMERCIAL SATELLITE TECHNOLOGY

- Inexpensive
- Readily available
- Worldwide coverage
- Wide choice of sensors

## AUTOMATE ALL PROCESSING

Get results fast

Keep it simple and easy to use

Minimize manpower and user intervention

# C-SIGMA Concept (continued)

Be able to monitor large Ocen Areas
* Wide Area Persistent Surveillance

Able to re-survey area quickly

Accurately detect Vessels of interest
* Minimize false hits
* Increased Probability of Detection

LiMES

# Global Maritime Awareness
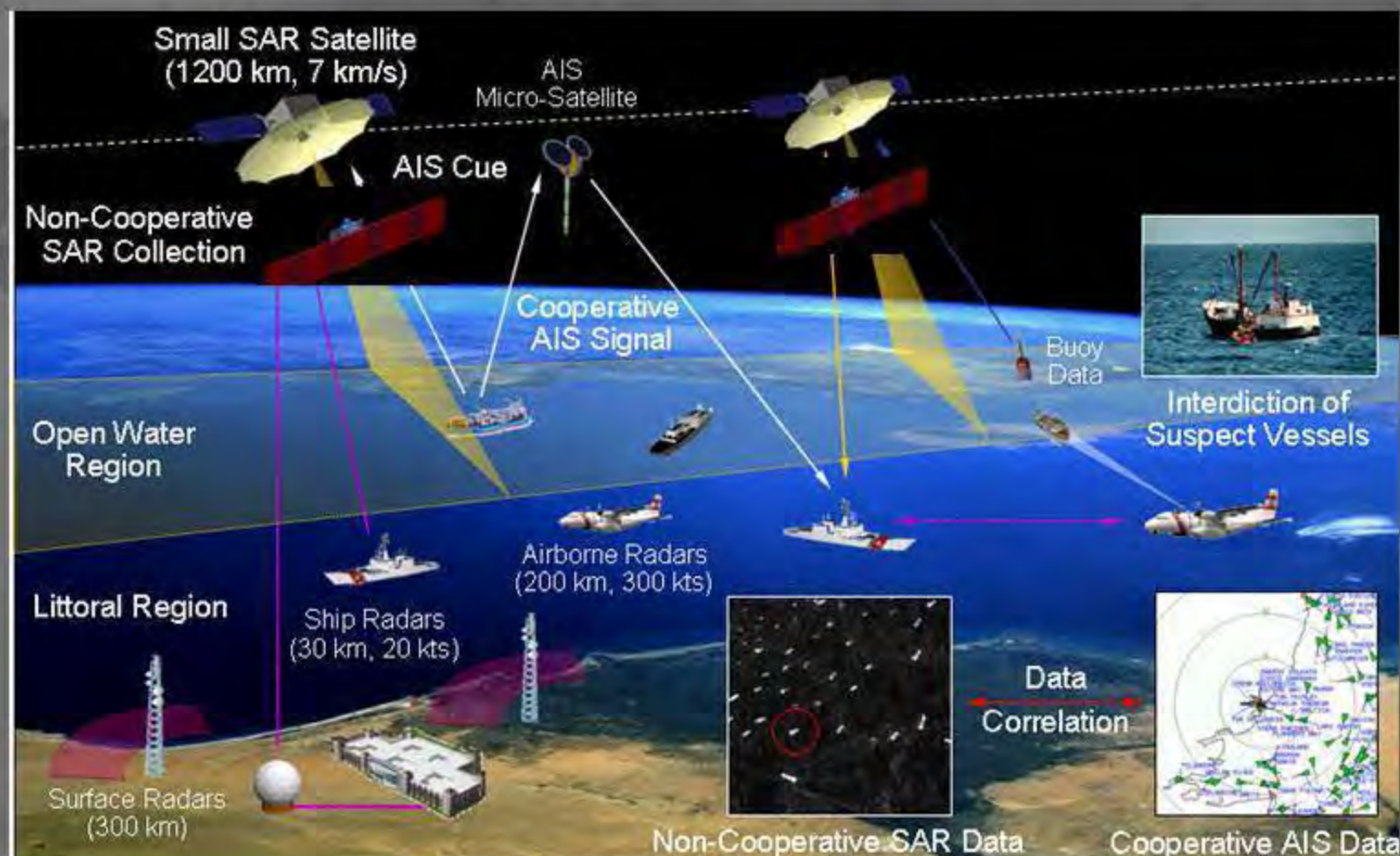


# Collaboration is THE Silver Bullet

# Combined MSSIS & S-AIS*



*From One Small, Cheap Satellite
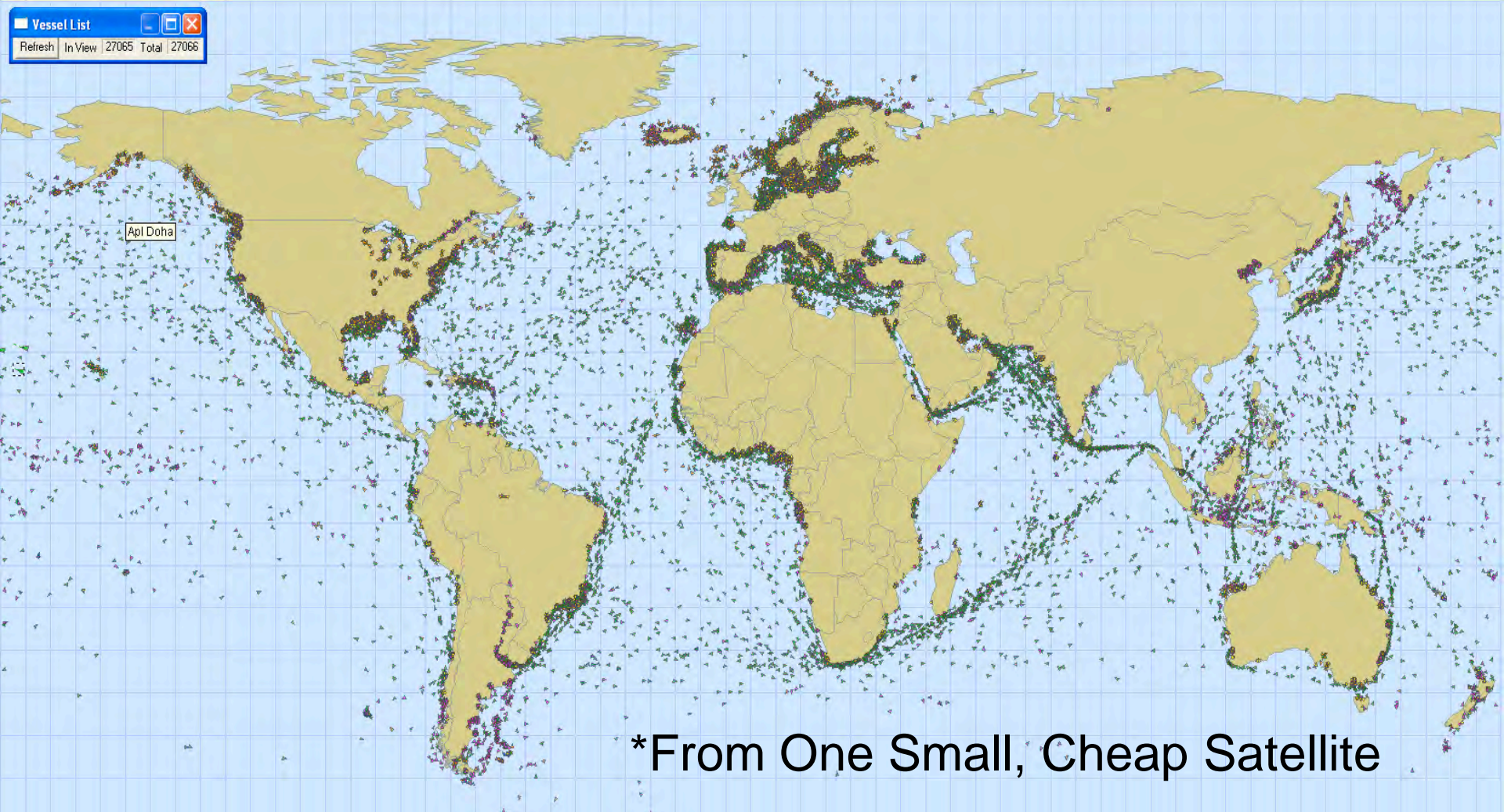
# C-SIGMA Concept
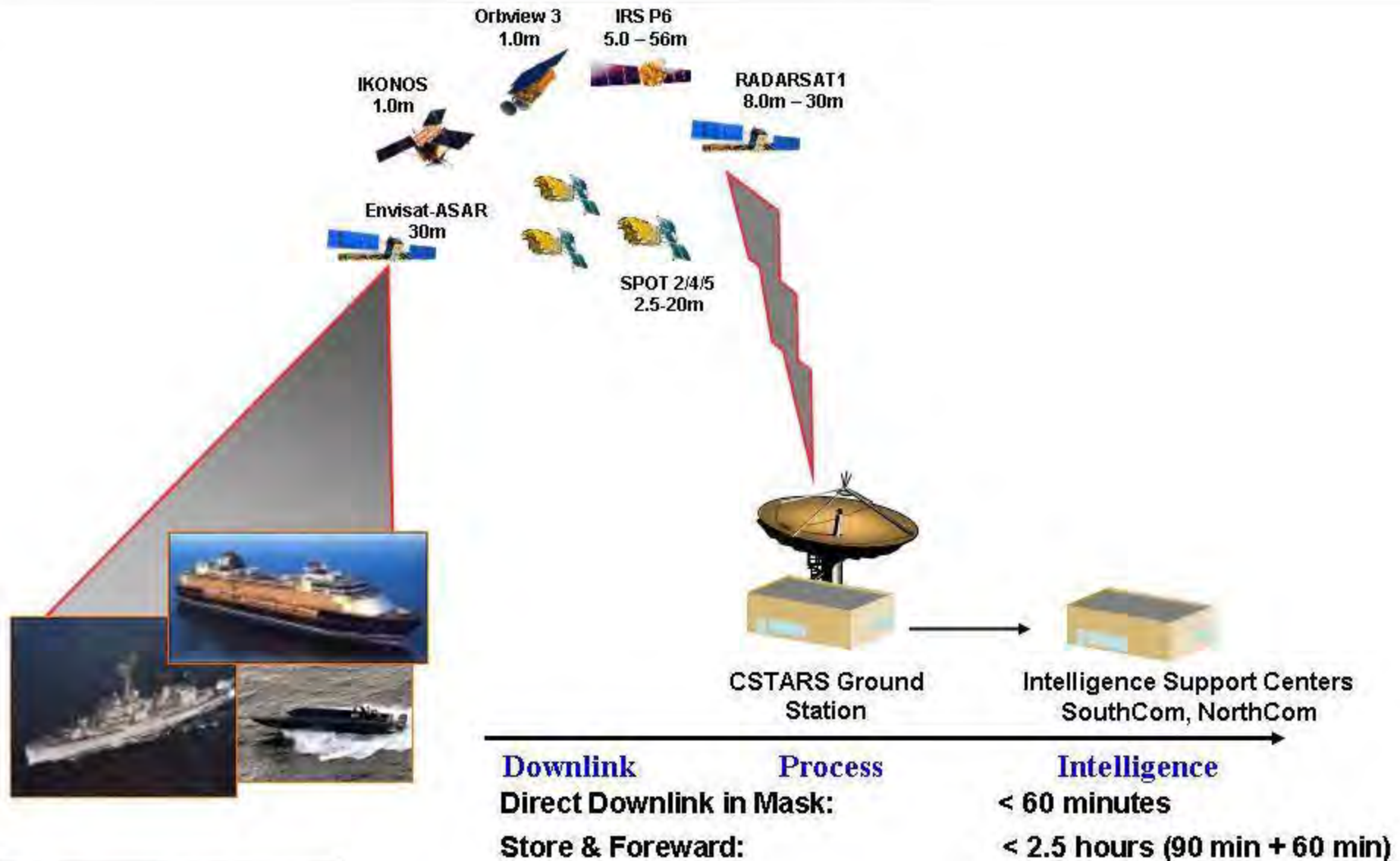
Courtesy CSTARS

# Important Factors re Maritime Awareness from Space

- **Integrated into Existing Surveillance Efforts**
- **Data Latency Drives Relevance of data
  & Provides cross-cueing opportunities**

- **Applications:**
  - **Detection:  Wide Area Surveillance requires reliable detection**
    - **Largest Possible Swath & Shortest Revisit Time**
  - **Classification:  AIS & Other Self Reporting Systems (or lack thereof)**
  - **Identification:  High Resolution EO/IR**

# Data Latency

- Drives Tactical Relevance of Data

- Drives Cross Cueing Opportunities



| Acquire Target | Downlink Data | Process |
|---|---|---|
| Time to complete Task | Real-Time | 5-30 minutes |

Courtesy of
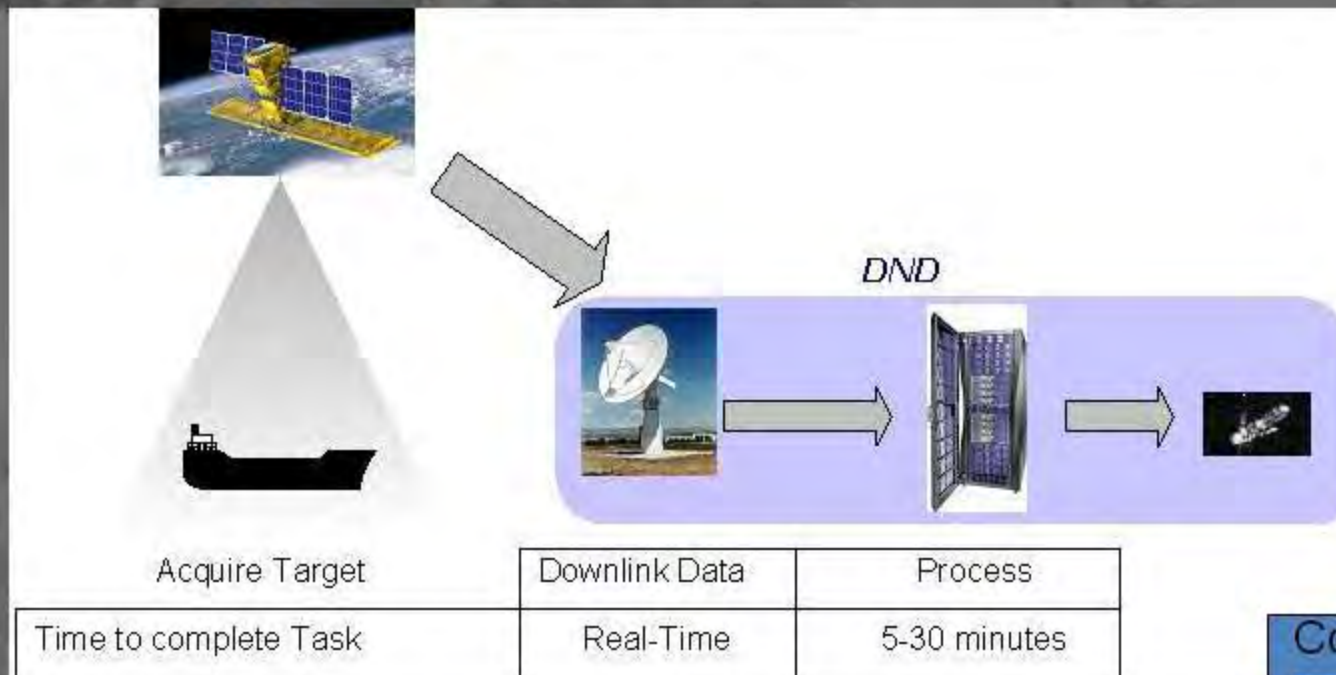
# 4 Types of Satellites
## (at a minimum)

- Synthetic Aperture Radar (SAR)
- EO/IR Imaging
- AIS Collectors
- Transponders

Each makes **UNIQUE** contributions

# SARSats

## Space-Based SAR Provides Global Access

- **All-Weather, Day-Night, Dynamically-Tasked, Tactical-Resolution SAR**
  - Optimized for large area collections Cues higher-resolution systems - Tipping & Cueing
- **Repeat Orbit**
  - Nominal 24 Hour Repeat
  - Optimal CCD over wide area
  - Maritime Domain Awareness
  - Non-SAR Mode for Vessel Detection
  - SAR mode for wake detection
- **Simultaneous SAR Imaging & Tagging**
- **TPED using existing ISR Infrastructure**
  - Theater tasking/downlink
  - Automated CCD Processing



Integrated Air-Space Theater ISR

**Analysis of Change Indicates Potential Activities of Interest**

Courtesy of Ball Aerospace

RADAR SAT 2

Courtesy of
MDA

# Cosmos Sky Med



Oil Tanker at 1-meter Resolution
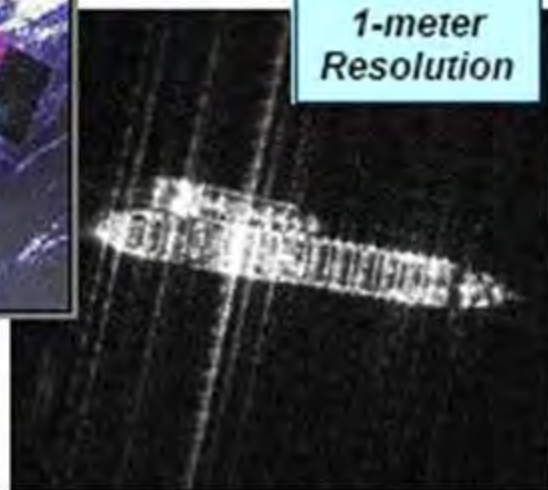
## Technology
- Constellation of four X-band SAR imaging satellites with multi-polarization

## The So What
- Resolutions from sub-meter in spot-light mode through several tens of meters
- Rapid revisit, improved persistence, 24-hr, global coverage
- The only commercial imagery satellite constellation with this capability
- Dual-use system for defense and civil applications

# SARS launched in Last Year

| | RADARSAT II | TerraSAR-X | Cosmo - SkyMed |
|---|---|---|---|
| Manufacturer | MDA - Canada | EADS Astrium GmbH/DLR – Germany | Telespazio - Italy |
| Commercial Imagery Provider | MDA - Canada | infoterra - Germany | eGeos- Italy |
| Band & Polarity | C-band multi-polarimetric | X-band multi-polarimetric | X-band multi-polarimetric |
| Orbit / Repeat / Revisit | Sun-Synchronous Polar / 24 days / Hours north of 48 latitude | Sun-Synchronous / 11 days / 2.5 days | Sun-Synchronous / 6 hours / Less than 12 hours |
| Satellites in Constellation | One operational with a Tandem planned | One operational, undergoing acceptance testing with a TanDEMX planned | Four with two operational, one awaiting launch (23-24 Oct 08), one in build |
| Modes & Resolution in Meters | Ultra-Fine – 3 meters Fine – 8 meters ScanSAR – 50 meters + 7 add'l beam modes | Spotlight – 1 meter Strip Map – 3 meters Scan SAR – 18 meters | Spotlight – sub-meter HIMAGE – 3 meters WideRegion - tens of HugeRegion - >tens of |
| NIIRS (Estimated) | 3 | 5 | 6 |
| Projected Life | 7 years | 5 years | 5 years |

# Why SAR?

## World-wide Cloud Cover Prevalence (8 year mean average)



Cloud Amount (%)

0    20    40    60    80    100
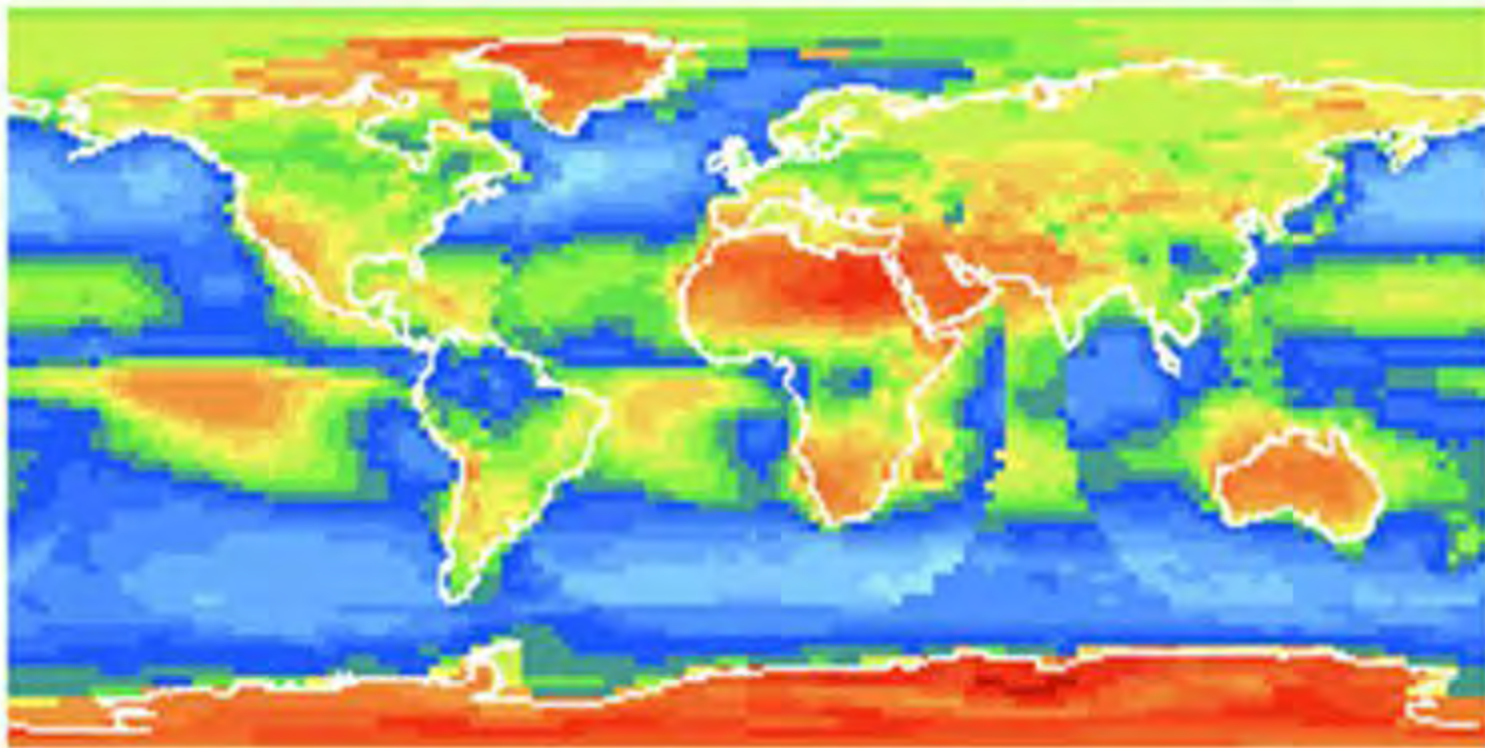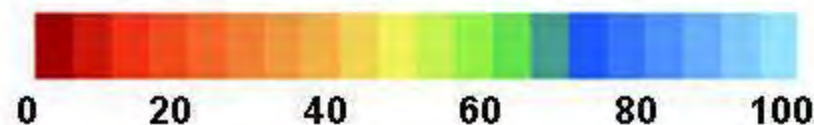
Courtesy of infoterra

# SARSAT CONOPS



Courtesy MDA
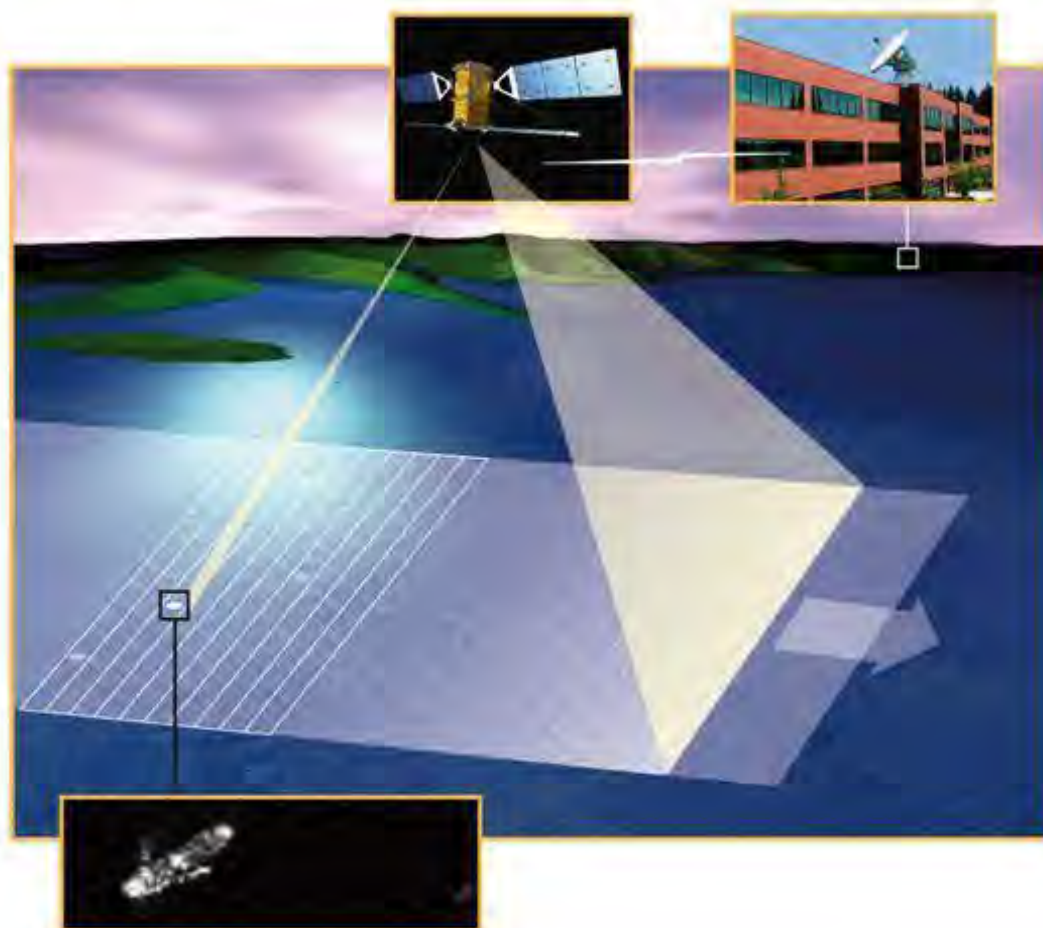
--SARSAT systematically images areas of interest

– Ground System receives, processes and detects targets in real time, uplinking probable target coordinates back to RADARSAT-2.

– RADARSAT-2 places a 10m resolution beam on probable targets to capture an image of the target.

– Ground System creates a 10m image chip and derived Target Detection Report.

# Cosmo-SkyMed 1,
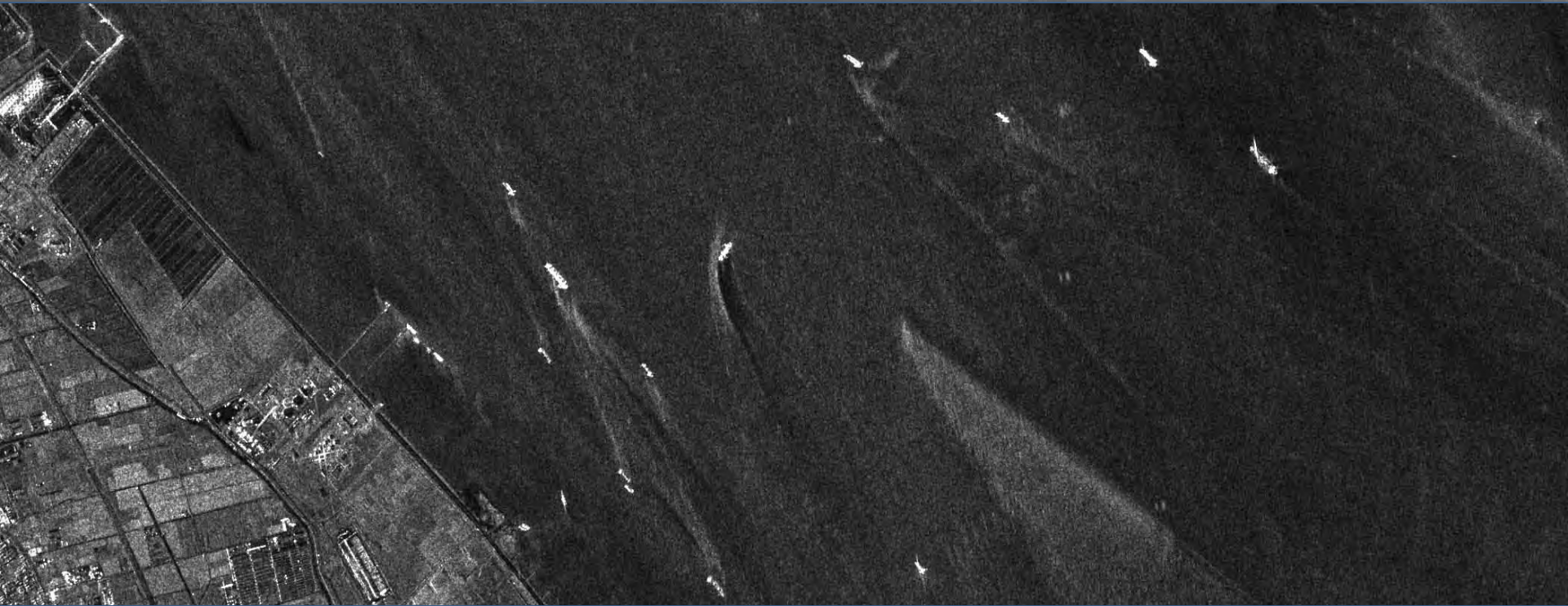


StripMap-HI imaging mode; 5 m resol.
13 Nov 2007 16:13 UTC,
Descending orbit, Left looking

# 2-D AESA Offers Agile Collection Capability

**No need to slew vehicle**

**No missed collect if on wrong side of vehicle track**

**Greatly increases area coverage rates**

L-Band ICR Axes
21 Mar 2007 06:20:03.000   Time Step: 3.00 sec

agi
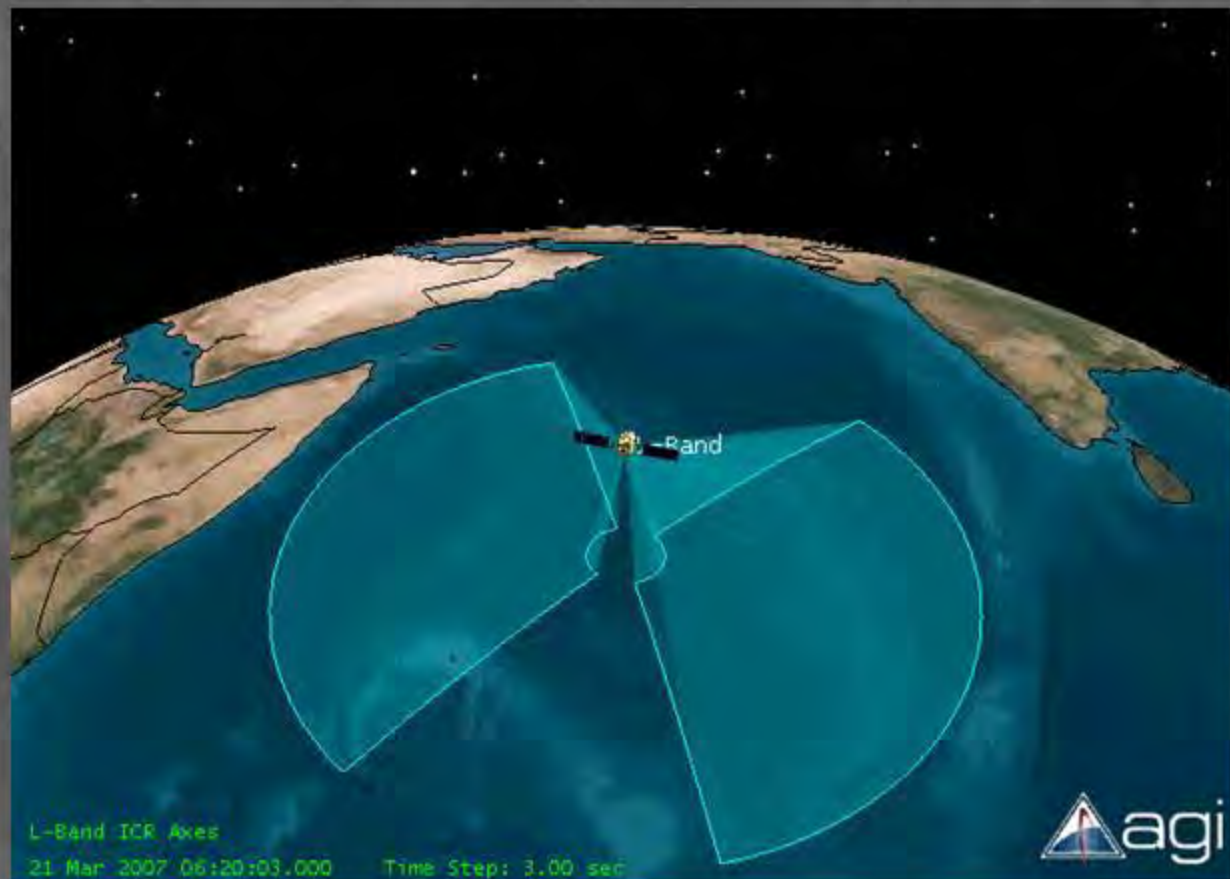
**Nadir Facing 2-D Electronically Steered Phased Array Offers Agile Collection with Tasking on Either Side of Vehicle Track**

Courtesy Ball Aerospace

# BASIC SARSAR Modes

## ScanSAR Mode

Satellite orbit

$h_{satellite}$

$\Theta_1 = 20°$

Nadir track

Swath width 100 km

$\Theta_2 = 45°$

**Resolution 16 m**

## StripMap Mode

Satellite orbit

$h_{satellite}$ (514 km)

Nadir track

$\Theta_1 = 20°$

Swath width: >30 km

**Resolution 3 m**

## Spotlight Mode

Satellite orbit

$h_{satellite}$

Nadir track

$\Theta_1 = 20°$

$\Theta_2 = 55°$

Centre of rotation

Full Performance Range

**Resolution 1 m**

Courtesy of

infoterra
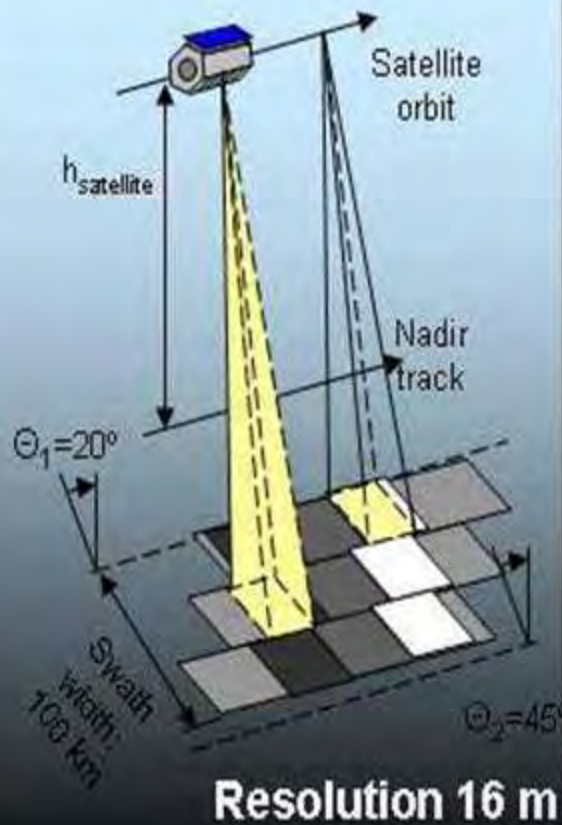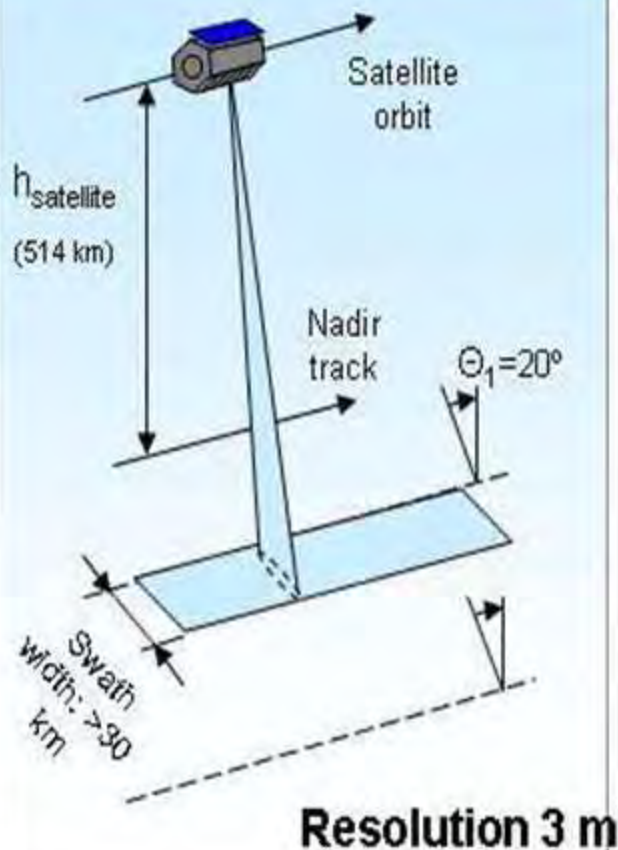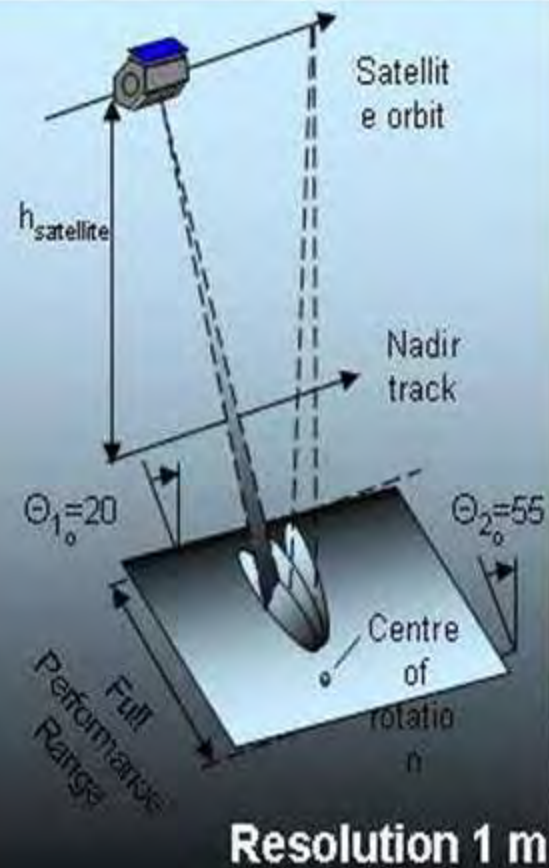
# BASIC SARSAR Modes with Resolution
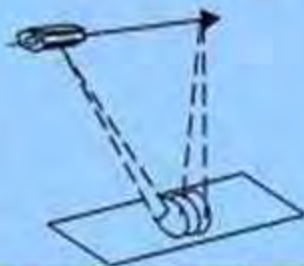


| Spotlight | Strip Map | ScanSAR |
|---|---|---|

| res.: << 1 m | res.: 1.0 m | res.: 3.0 m | res.: 16.0 m |
|---|---|---|---|
| identification of tanks possible (T72, Leo,...) | recognition of airplanes (Transport, Fighter,...) | detection of infrastructure (roads) | detection of coarse land cover features |

**Identification** ← **Recognition** **Detection**

# L-Band SARSat

# Wake and Ship Detection
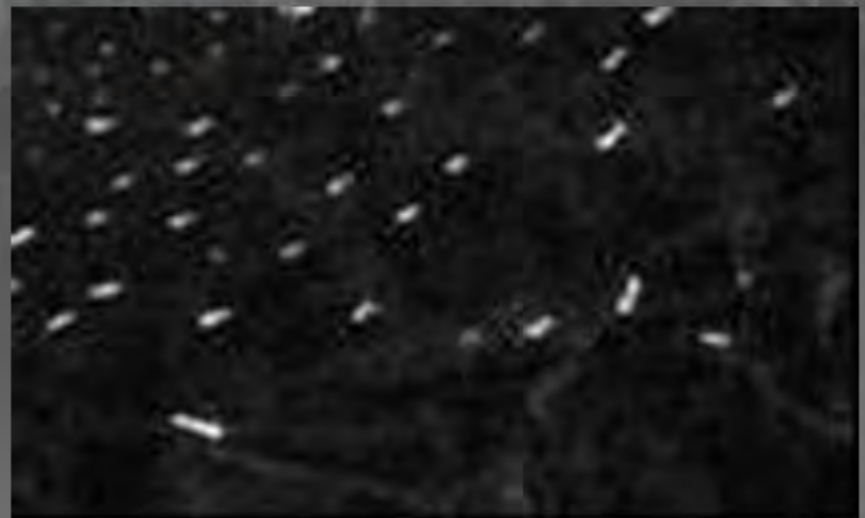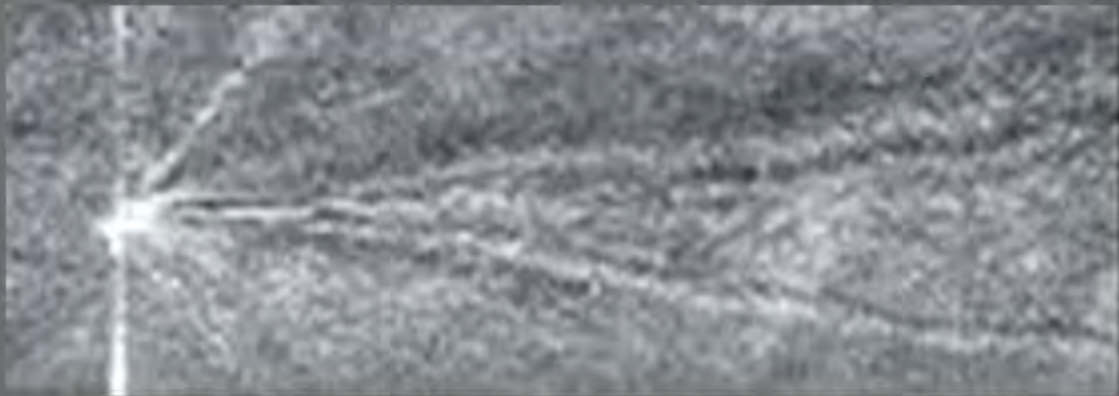


Courtesy of
*Ball Aerospace*

# L-Band SAR CONOPS

- Circular orbit 518 km altitude
- 70 Degree Inclination (Family of orbits possible)
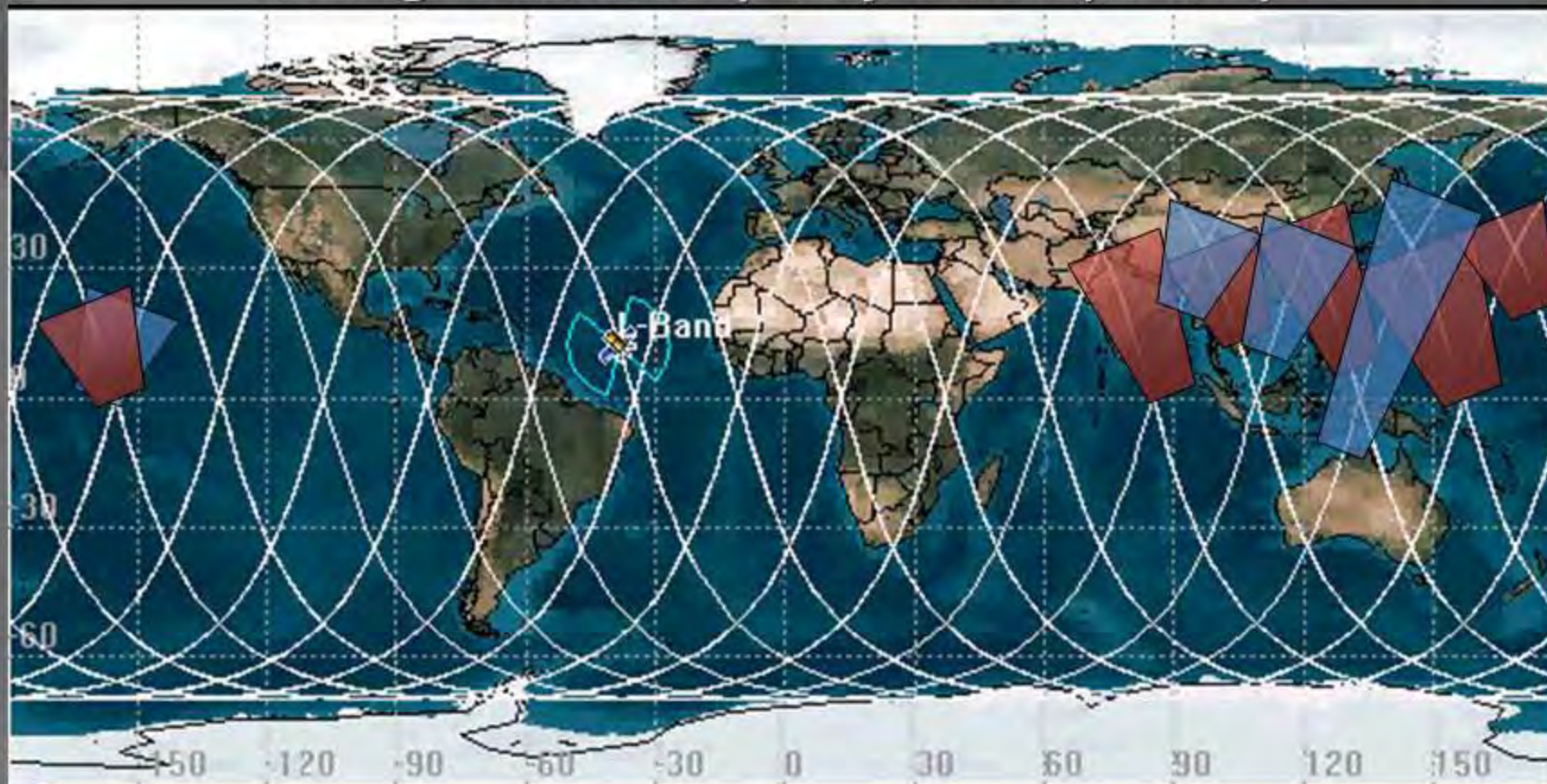


- *LEO Orbit Tuned for CCD  Exact Repeat of Target Viewing Geometries Within 1 Day*
- Surveil all ocean areas twice a day, detecting all vessels above 25m.

Courtesy Ball Aerospace

# IMAGING OPPORTUNITIES PER PASS



Courtesy JHU/APL
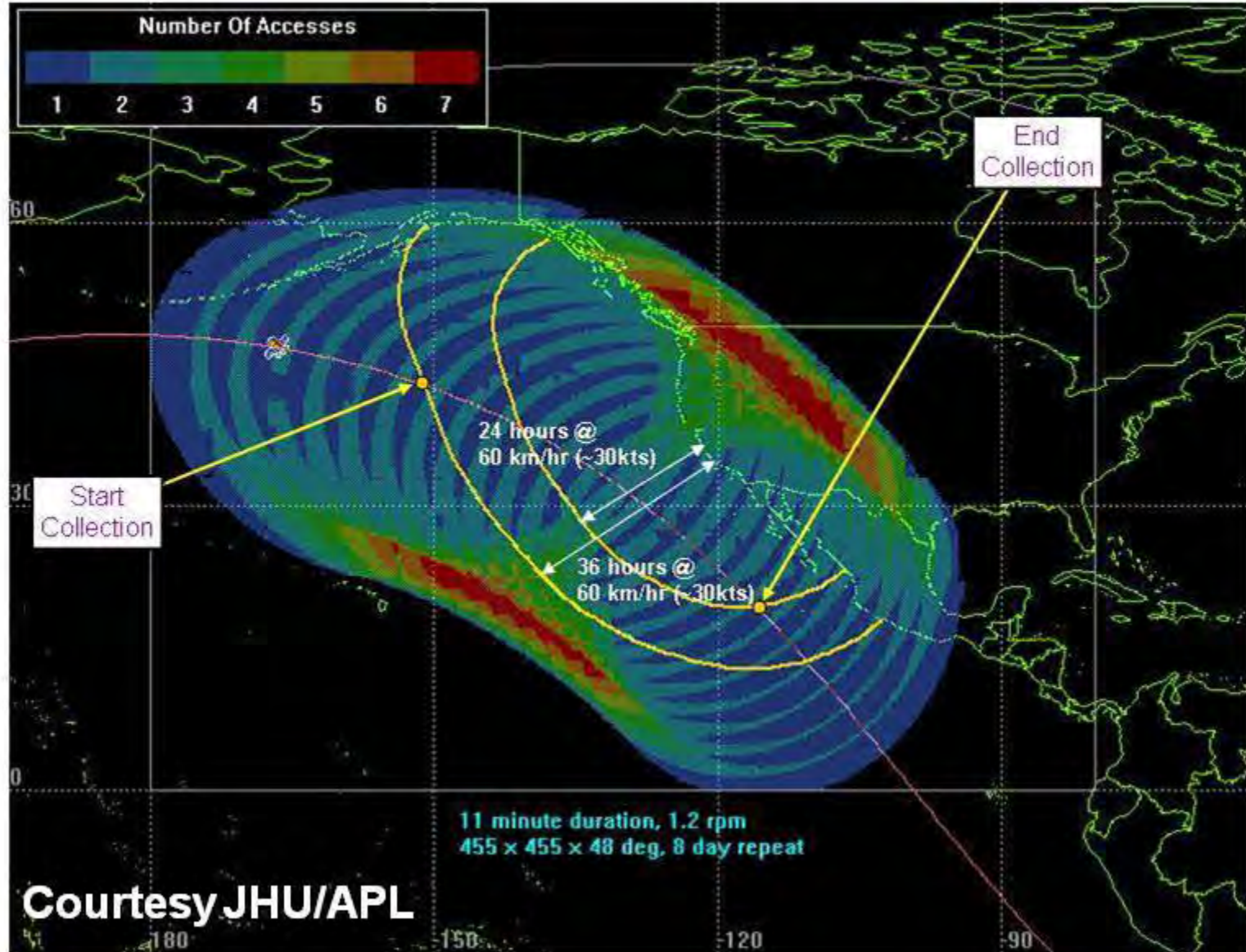
# ACCESSES PER DAY, SPINNER ARRAY



Courtesy JHU/APL

Up to 14-30 "hits" per day on Atlantic and Pacific CONUS approach routes

Graphic shows one day of an eight-day repeat orbit
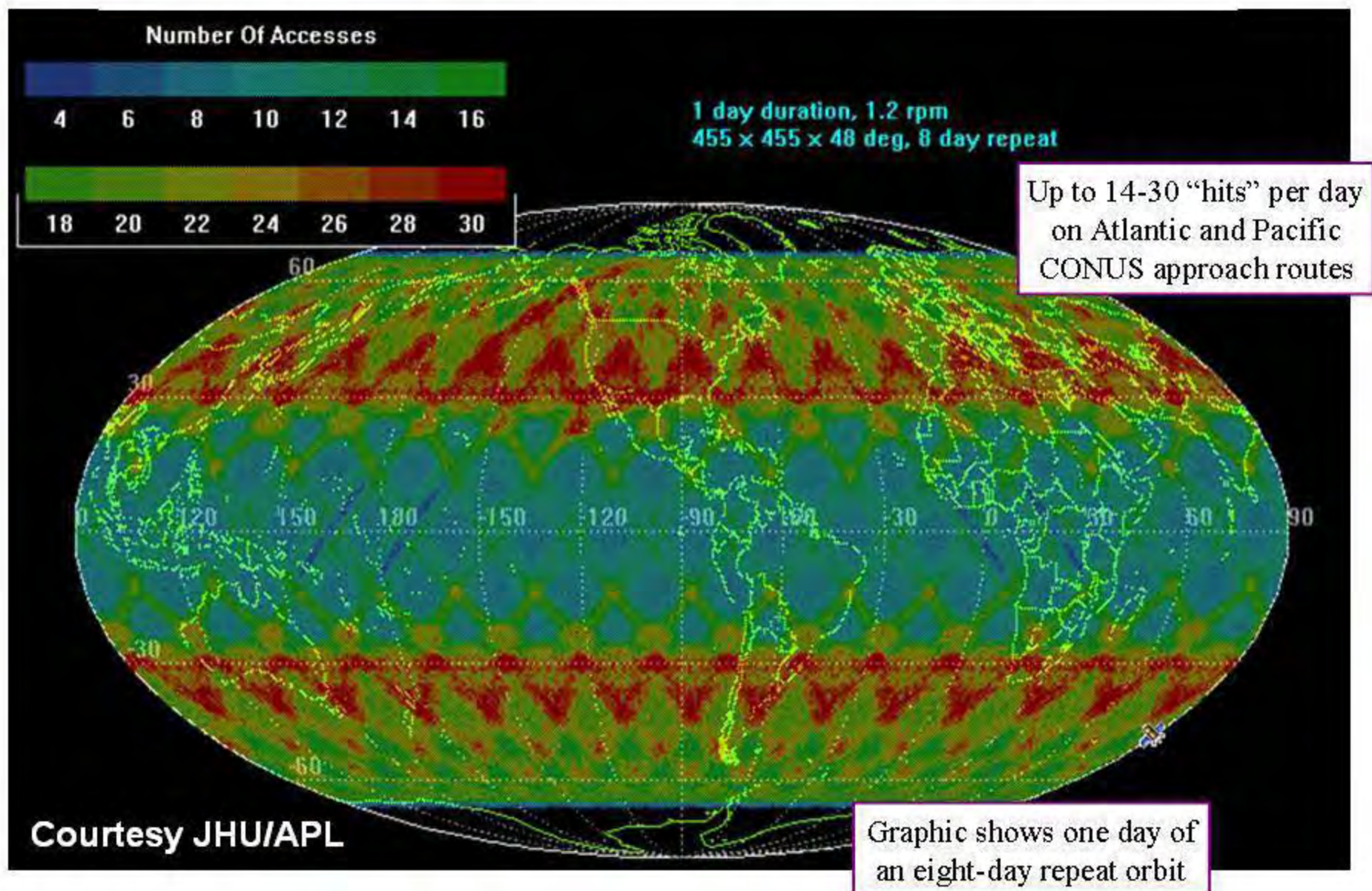
# L-Band SAR Daily Collection

# Frequency & FoPen
## *(Also applies to Wake Detection)*



Effective phase center

VHF    L-band

UHF    C-band

P-band X-band

Courtesy Ball Aerospace
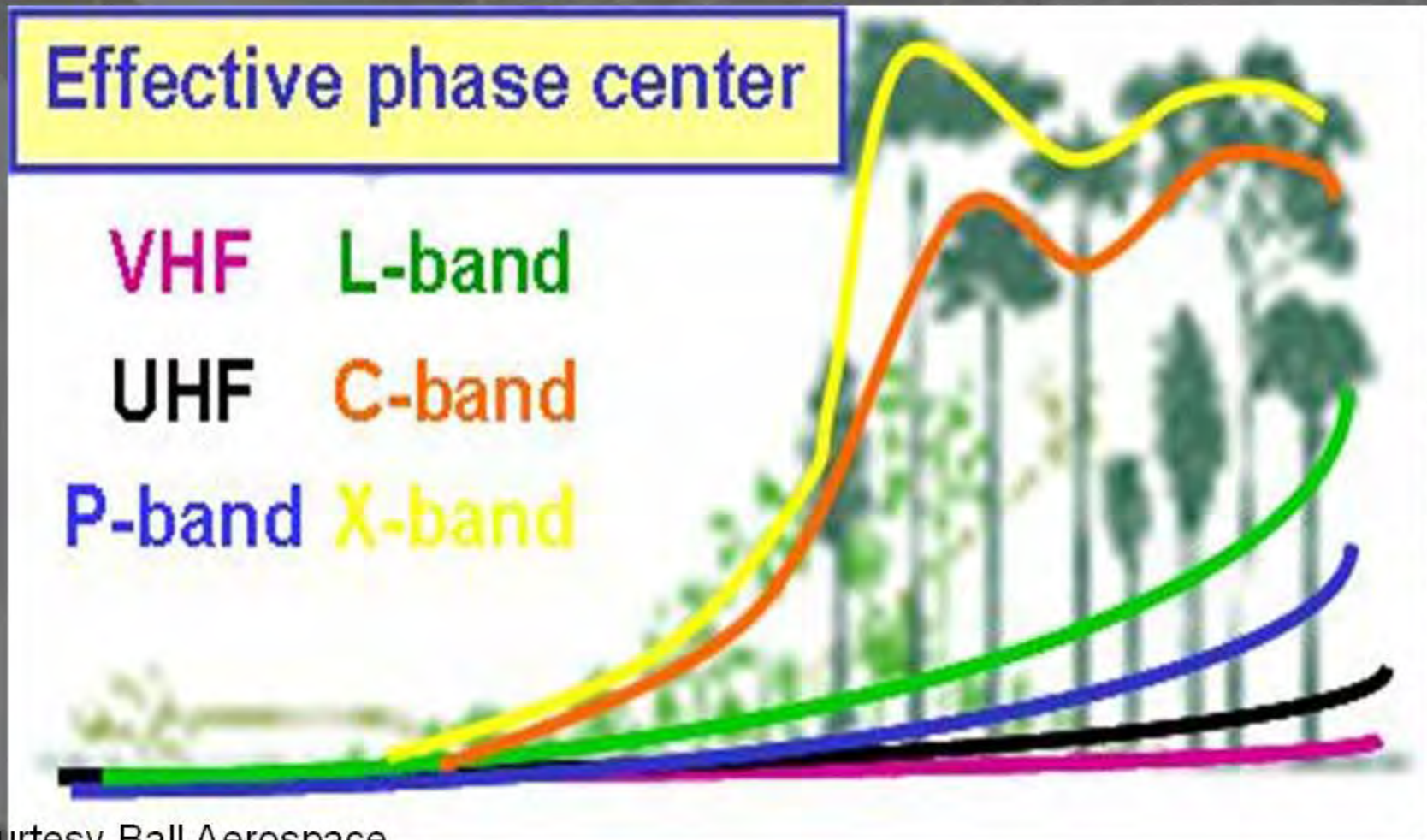
# Optical Systems

High Res Optical Satellites:

e.g. EROS-A1, EROS-B, OrbView, QuickBird, WorldView, IKONOS, Spot Image, GEOEYE

- Suitable for Ship Classification
  - Coverage from 8KM to 16.5KM
  - Resolutions from .5 to 1.80m (Panchromatic)
- Agile satellites with up to 12 hour to revisit times
- Some include direct tasking to support Tactical Surveillance applications

Photo courtesy of GEO-EYE

This 1-meter resolution image was collected November 20, 2008 by the IKONOS satellite. The image shows the SIRIUS Star, the Saudi-owned crude oil carrier Hijacked by Somali pirates, anchored approximately 5 miles off the Somali coast.

(IKONOS is 10 years old….)

# Freighter off-loading at Casablanca, Morocco
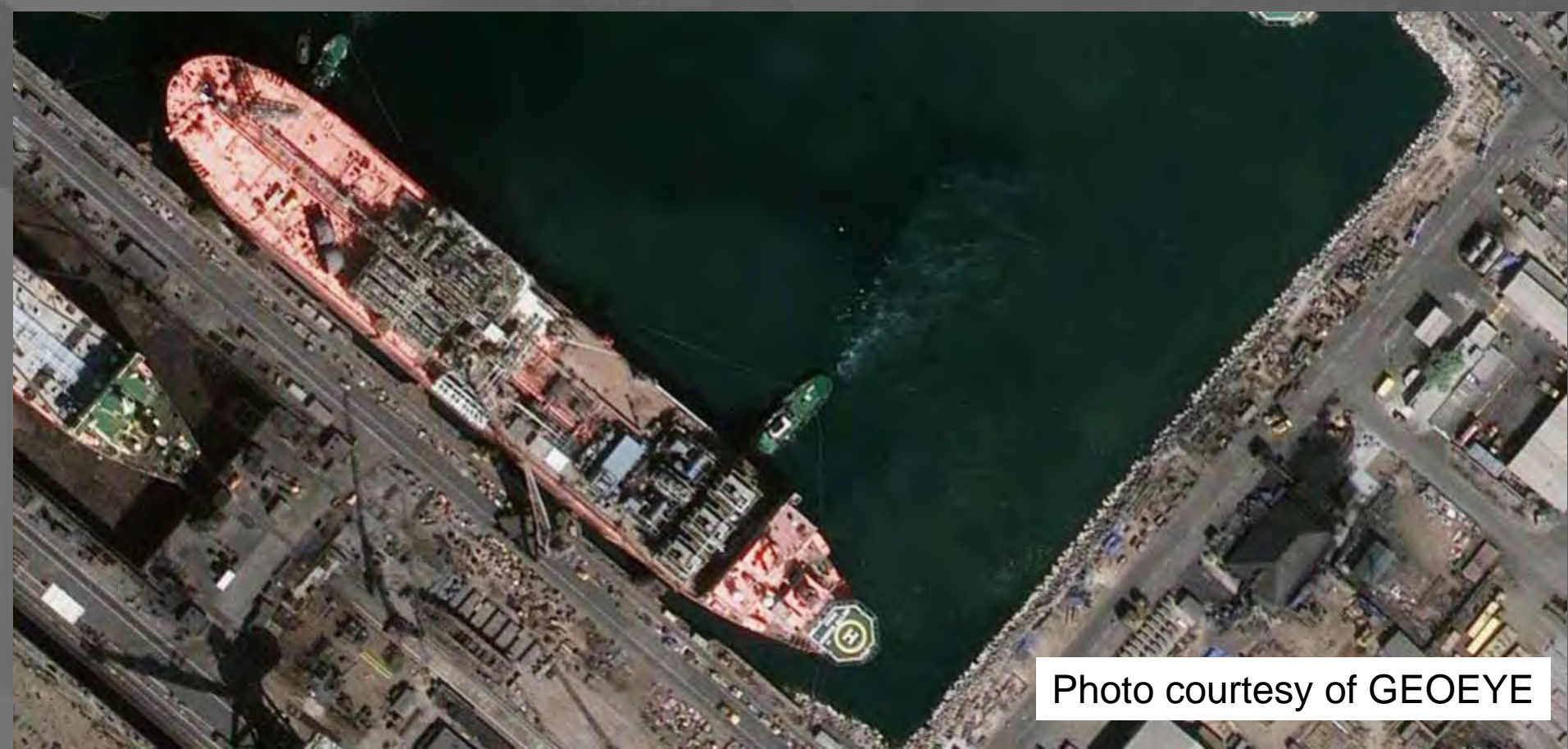


Photo courtesy of GEOEYE

½ meter resolution photo of Collected on October 25, 2008 by GEOEYE

# GEOEYE's First Pictures

# Data Latency:
# Ground Systems can provide imagery in minutes

- Data downlink: real-time
- Processing: immediately after downlink
- Images can be processed in priority order
- Pipelined product generation + image processing
- First Images can be delivered <u>minutes</u> after the target was acquired

- Currently, a commercial buy has latency of 4 - 48 hours

# AIS

CRUCIAL NEW COMPONENT

LETS YOU KNOW WHO THE *GOOD* GUYS ARE
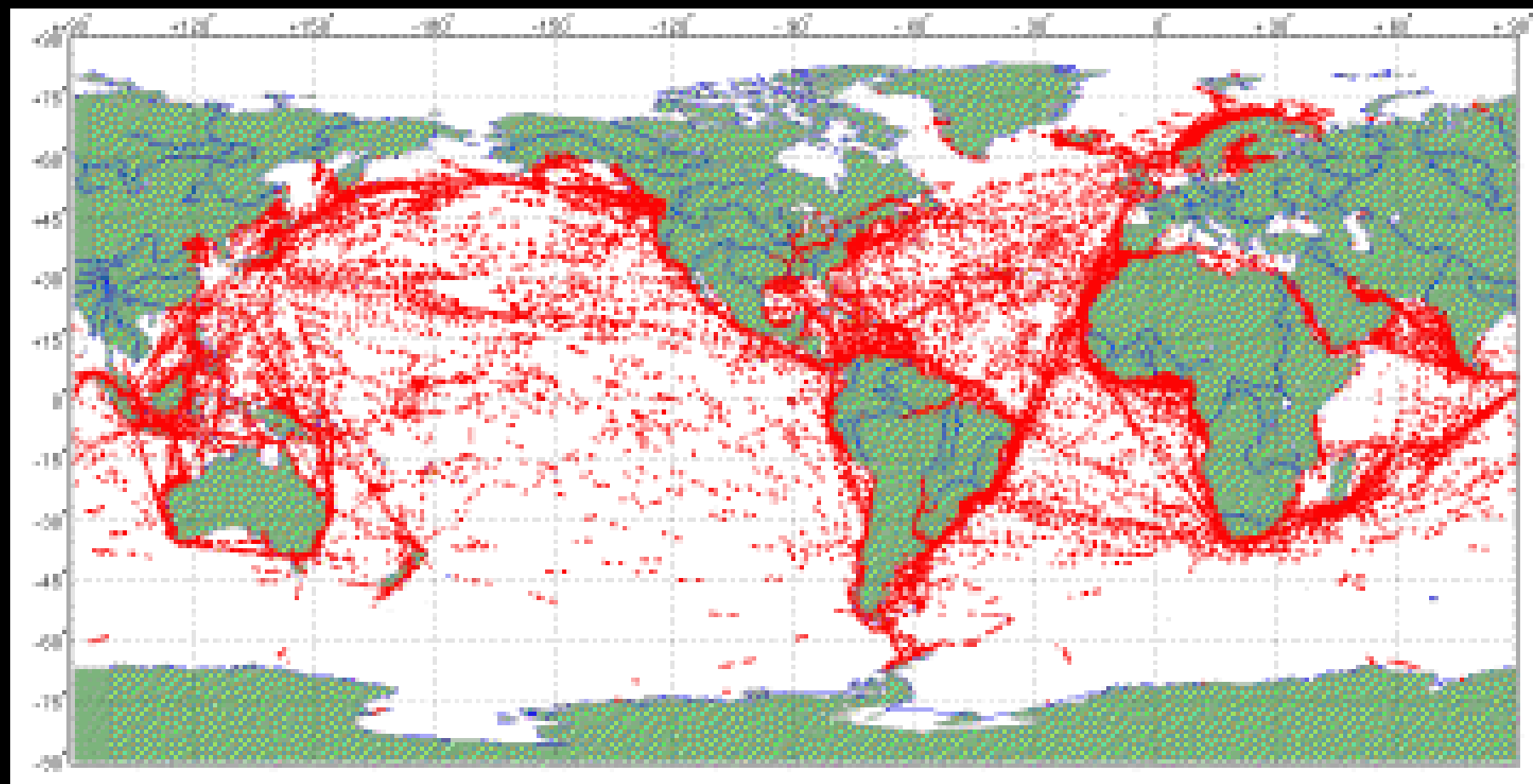
# AIS Detections
## from a Single Pass

# Full OrbComm AIS Satellite Coverage

Comparison of Shore-Based Vs. Satellite Based AIS Receivers
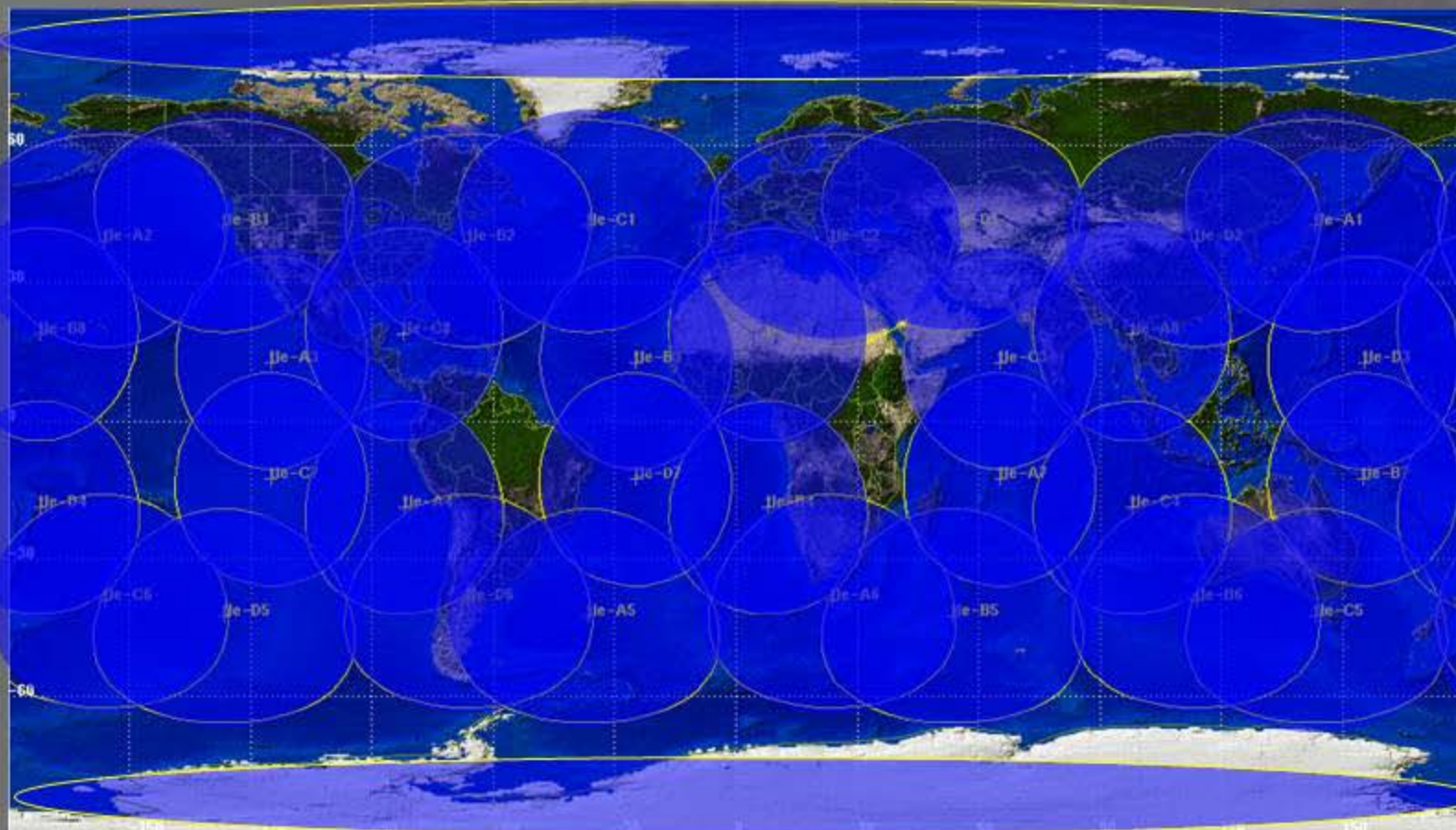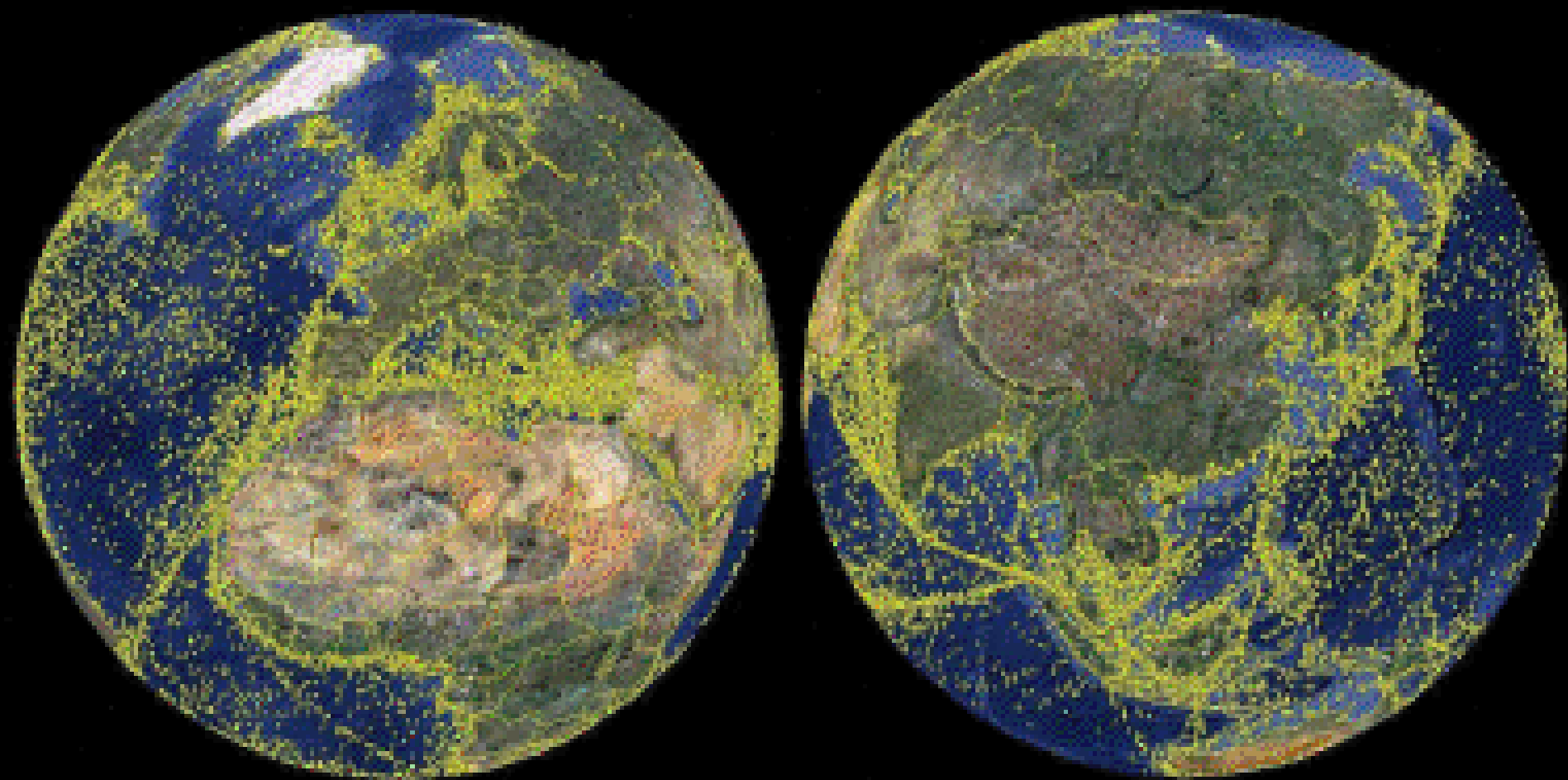
Shore-Based MSSIS Data

SpaceQuest AIS Data

AIS Messages collected during one 24-hour period.

# AIS Screen
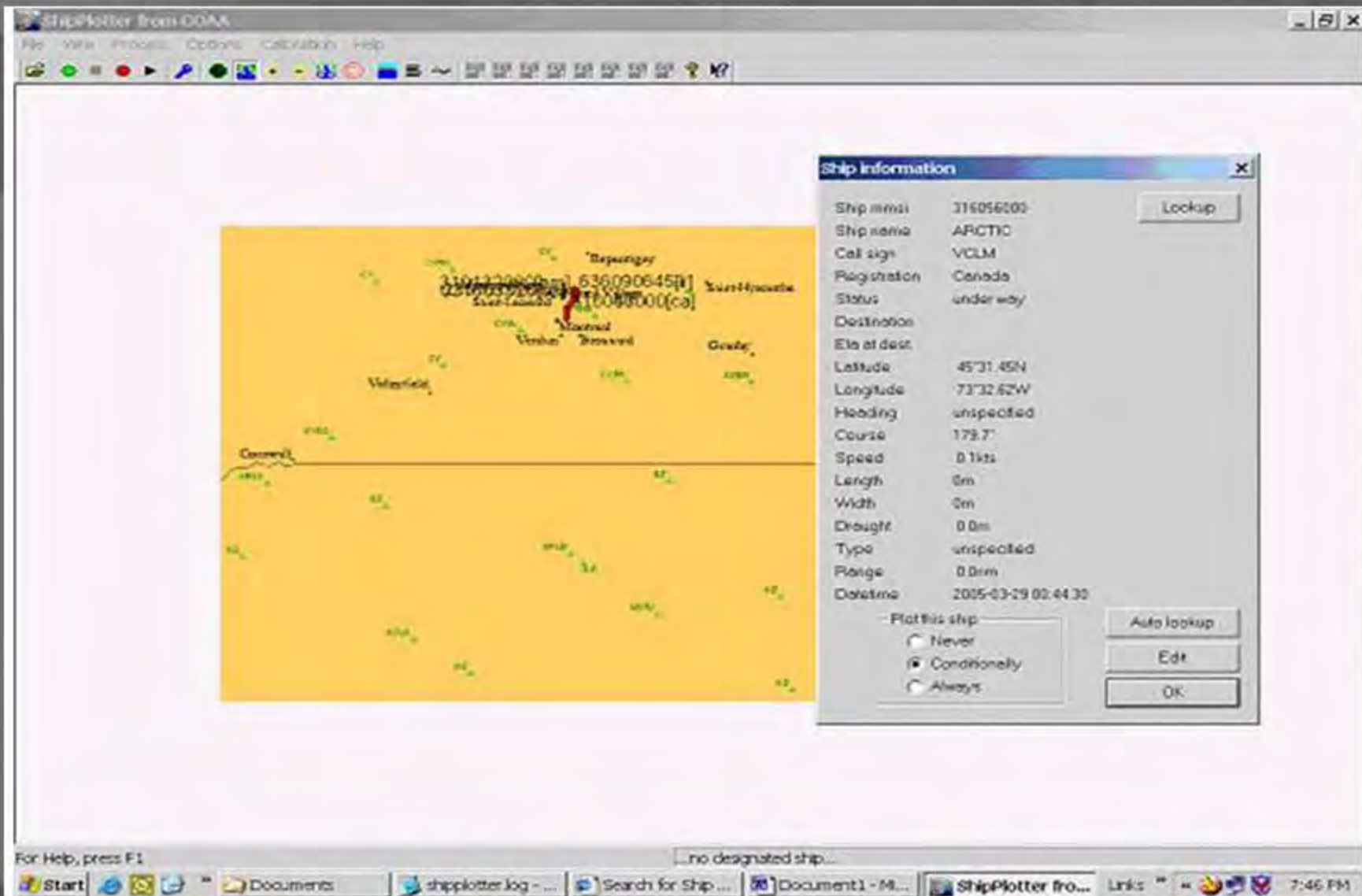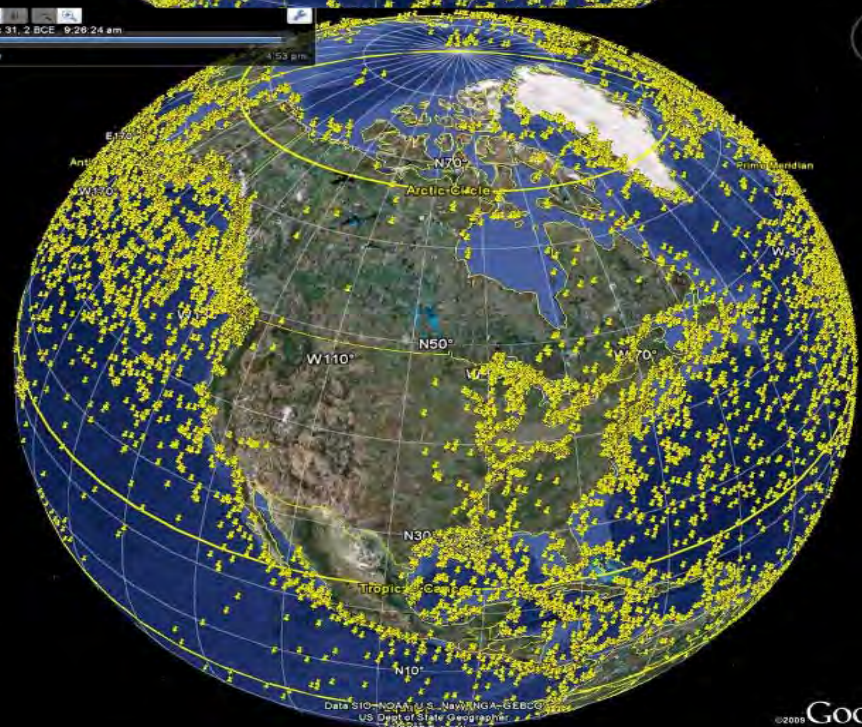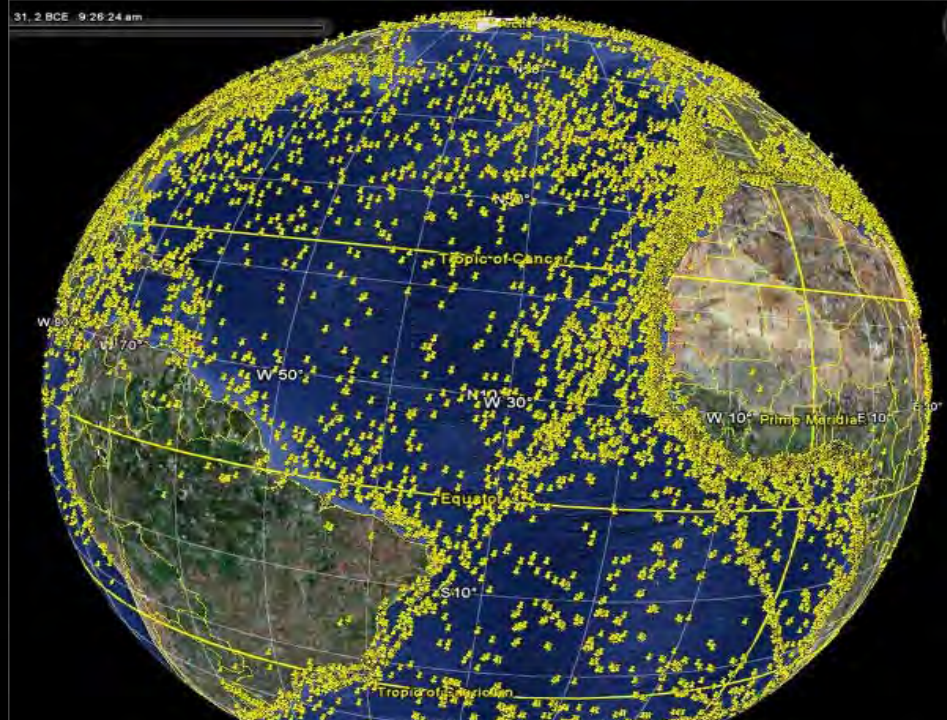
# 4nd Part of the C-SIGMA Equation

# Transponder Systems

## VMS

- IMARSAT
- ORBCOM
- Iridium
- Global Star
- Etc.

Often overlooked, not very sexy?
The Real Maritime IFF System?

# AKA
# Self Reporting Systems

- Tracking , (fishers +), trucks,  status change,
- Formatted Message
- Can be programmed to report
  - On a time schedule (every hour, every 30 minutes, etc.)
  - By geographic limit (cross a boundary)
  - Upon event (door open, temperature out of limits, etc.)
  - Combination of rules (e. g.  LRIT)
  - Upon demand from shore

# Dynamic Data Analysis

- **Goal**: Detect suspicious ship *behavior* from position tracking data

- **Approach**: Define a set of *discrete zones* and predict the ship movements in the grid

- Challenges:
    - prediction *precision*
    - lack of *positive exam-ples*
    - ship traffic *variability*
    - *privacy* *vs.* security tradeoff

- Scenarios:
    - *vendor* data distribution
    - *regional* data distribution

# Cross Cueing provides Tactical Surveillance

- ITEMS OF INTEREST FROM ONE SENSOR CAN BE ASSISGNED HIGH PRIORITY FOR COLLECTION BY OTHER SENSORS,
- BOTH SPACE BASED AND TACTICAL, E.G.



**You _CANNOT_ do it ALL from SPACE**

# Routine Event

# C-SIGMA Event Timeline

**A. Commercial Satellites equipped with AIS receivers (S-AIS) continuously Detect s all AIS emitters in area of interest .**

B. Several Commercial Comm Satellites collect  all ship positions reported via LRIT,  VMS and private systems.

# C-SIGMA Event Timeline

1. Radar Satellite images area of interest on routine pass.

2. Central processing facility correlates contacts detected via RadarSat to S-AIS, VMS and LRIT data. Detects three vessels of interest &

3. Alerts appropriate ground stations to task HR imaging satellite(s) to image the areas where the three vessels of interest can next be accessed, based on Traffic Patterns

# C-SIGMA Event Timeline
# Routine Event

4. All three resulting images are studied for items of interest, anomalous activity. -------- One unit is deemed suspicious

5. MPA is dispatched for a closer look, and Cutter is diverted to intercept, if needed.

6. MPA detects possible illegal activity and maintains track until....

7. Cutter arrives on scene and boards

# Cross Cueing Timeline

| Time | |
|---|---|
| 06:00 | RADARSAT collects with Scan SAR |
| 06:30 | East Coast Satellite Ground System (ECSGS) Detects unk Target with no AIS. |
| 06:45 | TRINITY determines EROS-1A could image Target at 1023 |
| 08:10 | MOSIC tasks ECSGS to image target |
| 08:30 | AUROA launched to intercept Target at 1200 |
| 10:20 | Image command uplinked to EROS-1A |
| 10:23 | EROS-1A images Target |
| 10:55 | ECSGS sends message with coordinates, heading and 1.0m resolution image to MOSIC |
| 11:05 | MOSIC IDs ship and informs AUROA crew. Based on ID as friend crew cancels reaction and resumes normal patrol. |

Courtesy MDA

# Proposed Network of Ground Stations

Three more in Hawaii, Midway and Alaska
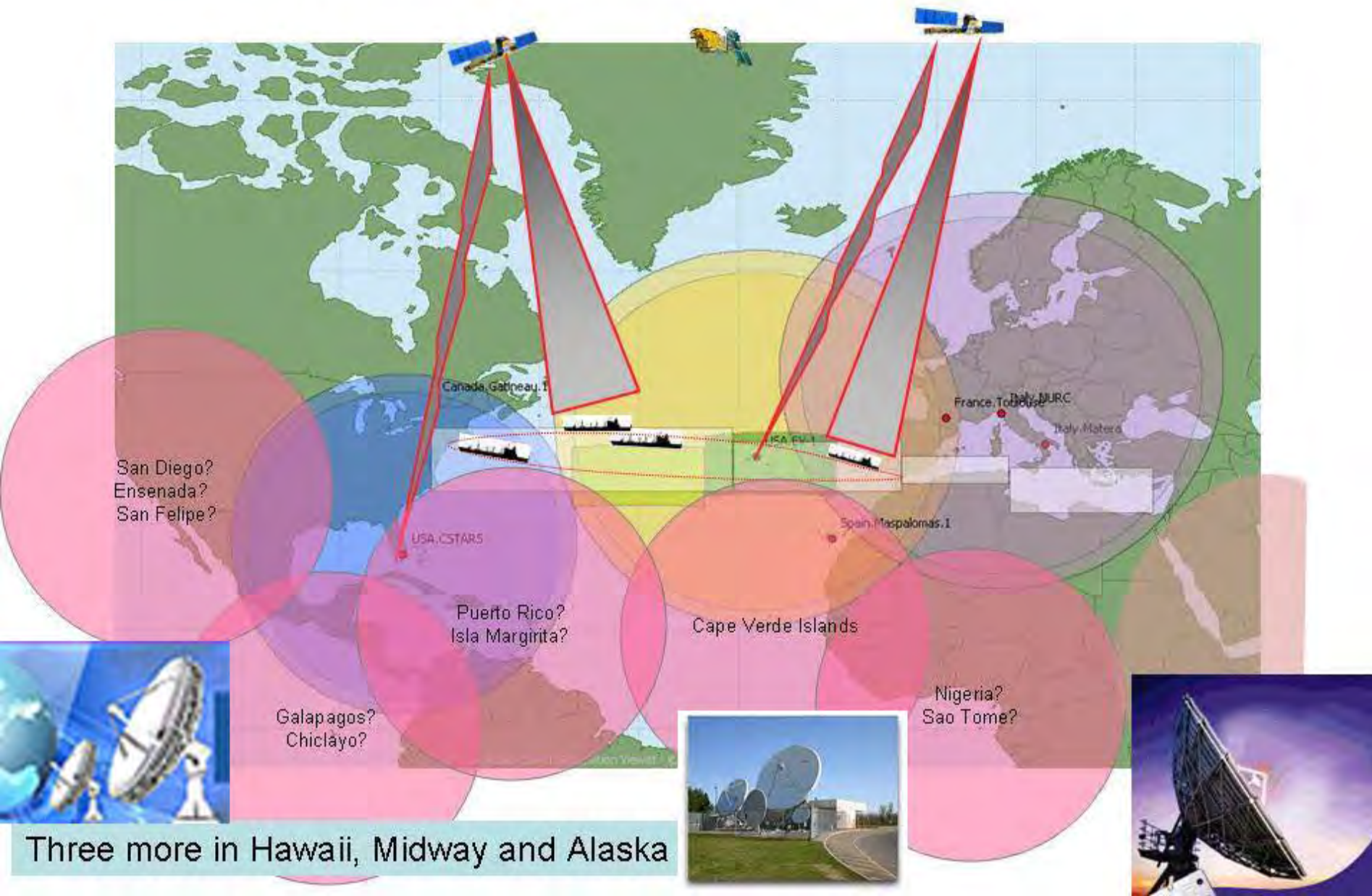
*All of the foregoing begs the question:*

# "HOW?"

**Initial Steps:**

1. Set up International committee ?

2. Coordination office at ……….?  ESA?  USCG?  Canada? US DHS?

3. US coordination led by  -  USCG?  Transportation?   DHS?   State?   ???

**Immediate Next Steps**

# C-SIGMA Exploratory Workshop

**Purpose**

- **Achieve consensus:**
  - **With international and inter-agency partners**
  - **Need to build an unclassified system using available space based (+ Terrestrial) systems**
  - **To establish a mechanism for Global Maritime Awareness (GMA)**

- **Identify:**
  - **Basic System Components**
  - **Next Steps to Implement GMA.**

# Bottomline

## There is no Silver Bullet
### BUT

## SPACE could be HUGE!

## COLLABORATION is the Key

# C-SIGMA, just a concept

- "PPD-4, National Space Policy, June 28, 2010, emphasizes U.S. leadership in space and directs international collaboration on mutually beneficial space activities for the purpose of broadening and extending the benefits of space.  To implement the President's direction the U.S. will begin the development of an open source system, utilizing government and commercial capabilities, to enhance global maritime domain awareness."

# QUESTIONS ?

**Eagle Shipping International (USA) LLC**

# Piracy Policy

# MV Redwing

# Topics

- **Redwing Overview**

- **Did we have to perform the voyage?**

- **Risk Assessment**

- **Armed or Not?**

- **Guard Service**

- **South Africa**

- **Mozambique – 13 day delay**

- **Disembarkation Issues**

- **East African Countries**

Eagle Bulk Shipping Inc.    **QUALITY - CONSISTENCY - TRANSPARENCY**

# Maritime Security Sector Reform (MSSR)

**September 2010**

# Overview

Background and Context

Structure of the MSSR Guide and Assessment Tool

Utility of the MSSR Guide and Assessment Tool

Collaboration and Next Steps

# Background and Context

## Security Sector Reform (SSR)

➢ The set of policies, plans, programs, and activities that a government undertakes to improve the way it provides safety, security, and justice.

▪ www.state.gov/documents/organization/115810.pdf
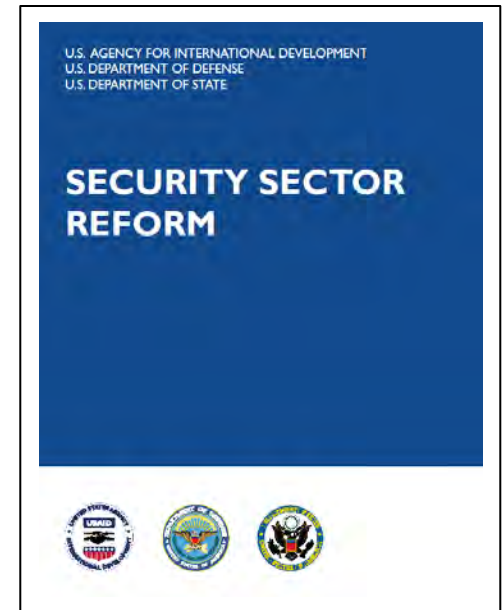


International work on Security Sector Reform
- United Nations
- Organization for Economic Cooperation and Development
- National policy and program activities

# Background: The Security Sector

**Non-state Actors**

Rebels

Militias

Gangs

Criminal organizations

Cartels

Private security companies

**Armed and Public Security Forces**

Police/Military

Paramilitary

Border security

Coast guards

Intelligence community

Customs agents

**Civil Management/ Oversight Bodies**

Executive

Civilian ministries

Legislatures

Justice system

Municipal and district governments/councils

**Other Actors**

Donors

International financial institutions

Neighbors

Regional organizations

**Civil Society**

Media

Academia

Civic groups

Think tanks

Business communities

# Linkages: Maritime, Commercial and Justice Sectors
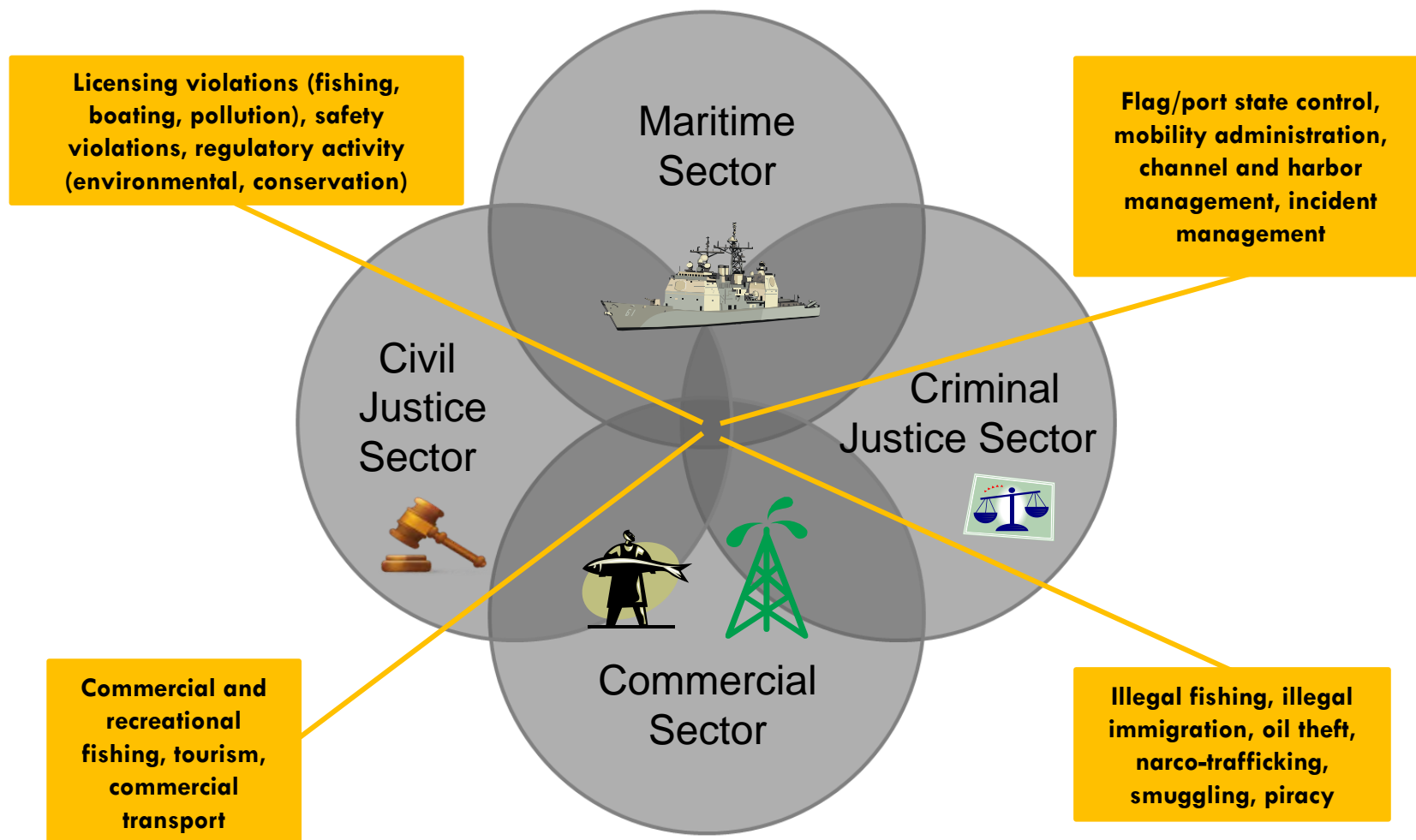
# Background: Maritime Security Sector Reform

## Maritime Security Sector Reform (MSSR)

➢ Application of SSR concepts to the maritime sector

  ▪ Identification of 6 interdependent maritime functions

    ▪ Maritime Governance, Maritime Civil and Criminal Authority, Maritime  Defense, Maritime Safety, Maritime Response and Recovery, Maritime Economy

Identified Gap:  *Lack of a diagnostic tool to produce baseline analysis of a national maritime sector, including critical elements of governance, civil and criminal authority, defense, safety, response and recovery, and economy*

*The MSSR assessment tool is **an analytical tool** – not a strategy*

# MSSR Guide:  Functions and Sub-Functions*

| | MARITIME GOVERNANCE | MARITIME CIVIL AND CRIMINAL AUTHORITY | MARITIME DEFENSE | MARITIME SAFETY | MARITIME RESPONSE AND RECOVERY | MARITIME ECONOMY |
|---|---|---|---|---|---|---|
| **FUNCTIONS** | | | | | | |
| **SUB-FUNCTIONS** | MISSION<br><br>AGENCY ORGANIZATION<br><br>LAW AND POLICY<br><br>PROGRAMS<br><br>PROFESSIONALS<br><br>COMMUNICATIONS<br><br>ACCOUNTABILITY AND OVERSIGHT | ENFORCEMENT OF CIVIL AND CRIMINAL LAWS<br><br>INTEGRATED BORDER MANAGEMENT<br><br>JUDICIAL SECTOR SUPPORT<br><br>MARITIME ENVIRONMENTAL ENFORCEMENT | MARITIME DEFENSE ADMINISTRATION<br><br>MARITIME DEFENSE FORCES<br><br>MARITIME AWARENESS<br><br>DEFENSE ASSISTANCE TO CIVIL AUTHORITIES | MARITIME SAFETY ADMINISTRATION<br><br>FLAG STATE CONTROL<br><br>PORT STATE CONTROL<br><br>FISHING/SMALL VESSEL SAFETY & OPERATIONS MANAGEMENT<br><br>MARITIME FACILITY SAFETY MANAGEMENT<br><br>MARITIME MOBILITY ADMINISTRATION<br><br>AIDS TO NAVIGATION<br><br>CHANNEL AND HARBOR MANAGEMENT | EMERGENCY RESPONSE ADMINISTRATION<br><br>INCIDENT MANAGEMENT<br><br>SEARCH AND RESCUE<br><br>FIRE<br><br>ENVIRONMENTAL | ECONOMIC ACTIVITY REGULATION AND MANAGEMENT<br><br>COMMERCIAL PORTS<br><br>TRANSPORT<br><br>ECONOMIC CONDITIONS |

*under development

# MSSR Guide:  Major Functions

| Function | Sub-function | Capability | Approach Measurement Indicators | Delivery Measurement Indicators |
|---|---|---|---|---|
| Maritime **Governance** | | | | |
| Maritime **Civil and Criminal Authority** | | | | |
| Maritime **Defense** | | | | |
| Maritime **Safety** | | | | |
| Maritime **Response and Recovery** | | | | |
| Maritime **Economy** | | | | |

# MSSR Guide: Sub-Functions and Capabilities*

| Function | Sub-function | Capability | Approach Measurement Indicators | Delivery Measurement Indicators |
|---|---|---|---|---|

| Sample Sub-function | Sample Capability |
|---|---|
| **b. Maritime defense forces** <br><br> *The tasks required to ensure naval assets and agencies are able to keep the national maritime domain free of threats or losses from illegal acts or aggression that could have security, safety, economic, or environmental impacts.* | **1. Ability to effectively exert appropriate command and control of naval and supporting forces for maritime operations.** <br><br> **Components:** Military command structures subordinate to, and in support of, appropriate civilian authorities; Inter-service liaison and coordination; Regional and international cooperation |
| | **2. Ability to fulfill specified operational missions, such as those to detect, deter and interdict sovereignty threats against the infrastructure, assets and interests of maritime domain stakeholders and users.** <br><br> **Components:** Policies and plans; Standard operating procedures; Standard organization regulation manuals; Tactics, techniques and procedures; Ongoing operational training |
| | **3. Ability to deploy and sustain a maritime defense fleet.** <br><br> **Components:** Vessels, aircraft and supporting equipment; Adequate levels of equipment maintenance; Stores, fuels and supplies to ensure open sea lines of communication and the safe transit of maritime commerce |
| | **4. Ability to collect, process, analyze, integrate, and interpret on a systematic basis available information/intelligence concerning external threats to the maritime domain.** <br><br> **Components:** Threat detection; Investigative capacity; Information coordination and sharing; MSA/MDA coordination |
| | **5. Ability to plan for maritime defense contingencies.** <br><br> **Components:** Training; Joint exercises; International interoperability |

*under development

# MSSR Guide:  Approach Indicators*

| Functions | Sub-functions | Capability | Approach Measurement Indicators | Delivery Measurement Indicators |
|---|---|---|---|---|

| Qualitative Indicator Range | Quantitative Indicator Range | Approach Indicator Definition |
|---|---|---|
| **Nominal** | 0 – 2 | Some activity exists evidencing the capability measured, but such activities are not part of formal plans, policies, processes, or programs that would enable the capability to exist on a reliable and reproducible basis. |
| **Modest** | 3 – 5 | Organized, if basic, approaches to the capability exist, and efforts are in place to address weaknesses. |
| **Moderate** | 6 – 8 | Organized activities supporting the capability are professional, formalized and supported by adequate budget levels. |
| **Significant** | 9 – 10 | Activities are formalized, planned, funded, assessed and adjusted on a continual basis, evidencing a significant level of capability in this area. |

*under development

# MSSR Guide:  Delivery Indicators*

| Functions | Sub-functions | Capability | Approach Measurement Indicators | Delivery Measurement Indicators |
|---|---|---|---|---|

| Qualitative Indicator Range | Quantitative Indicator Range | Delivery Indicator Definition |
|---|---|---|
| **Nominal** | 0 – 2 | The capability is infrequently employed (0-30% of the time) and its contribution to positive outcomes is minimal. |
| **Modest** | 3 – 5 | The capability is not consistently employed (30-60% of the time) and outcomes are erratic or unpredictable. |
| **Moderate** | 6 – 8 | The capability is mostly employed (60-90% of the time) and produces adequate outcomes. |
| **Significant** | 9 – 10 | The capability is consistently employed (90% of the time or higher) and produces effective and efficient outcomes. Capability reviews ensure the capability is upgraded if/as circumstances require. |

*under development*

# Elements of Institutional Reform

| Purpose | Policy | Performance | People | Public |
|---------|--------|-------------|--------|--------|
| Mission | Planning | Regulation | Performance Management | Accountability |
| Organization | Development | Programs | Human Capital Management | Ethics |
| | Budgeting | Decisions | Civil Service | Participation |
| | | Adjudication | Communications | |

*Source: Greg Gisvold*
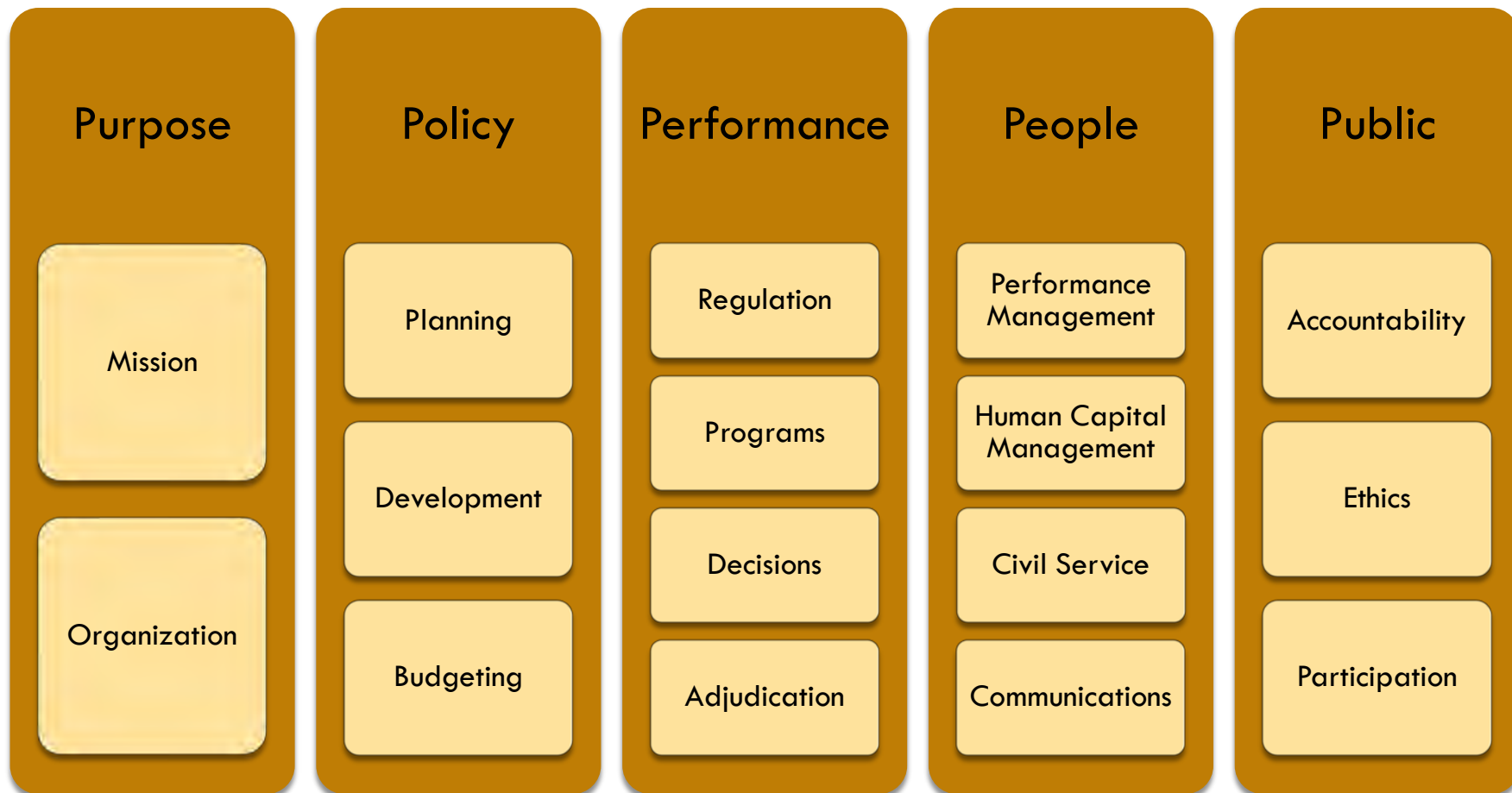
# Utility of MSSR Guide and Assessment Tool

Provides a system-wide basis for analyzing regulatory, operational, and institutional policies and functions required for maritime security
  - Capabilities assessed by (1) Approach and (2) Delivery

Enables development of national (self-assessment) and/or collaborative (joint assessment) understanding of  where resources may best be targeted to improve specific aspects of a country's national maritime sector

Provides consistent measurement criteria over time for comparative analysis

Permits identification of gaps in key functions and capabilities through sector-wide and cross-sector approach

Facilitates coordination to avoid duplicative efforts, including through use by regional and international organizations

# Collaboration on the MSSR Guide and Next Steps

Comments invited via email to
Ms. Christina Rosati, U.S. Department of State (rosatics@state.gov)

Revised/expanded version to be available in the near-term

Dissemination of the document for use by interested stakeholders

Ongoing revision in accordance with stakeholder use and comments

# International Maritime Safety and Security Exchange: A Promising Business Model for Global Maritime Safety and Security

Our ports and waterways remain woefully vulnerable to terrorist attacks. Nearly a decade after 9/11 revolutionized aviation security, we are long overdue to apply many of those lessons learned to maritime security. This issue brief calls for the creation of an innovative, integrated International Maritime Safety and Security Exchange to mitigate existing vulnerabilities in the maritime domain.

## Context

The United States Government experienced a remarkable rebirth in aviation security after 9/11. We have become familiar with air marshals, enhanced baggage screening, passenger information exchanges, no-fly lists, body scanning and travel document standardization. As our image of aviation security matures, we have become more accepting of previously objectionable government-authorized technological applications, routines and procedures. In fact, we are much more appreciative of the persistent dimension of aviation security, especially after the attempted hijacking or destruction of American Airlines Flight 63 by the "shoe bomber" Richard Reid on December 22, 2001 or more recently Northwest Airlines Flight 253 on December 25, 2009 by Umar Farouk Abdulmutallab.

Like 9/11, these events energized security professionals to understand the gaps, acquire more technology and

## Maritime Security Studies

In 2009, the Atlantic Council initiated several efforts aimed at understanding better the national security implications of global maritime security and developing policy-relevant solutions to maritime security challenges. These efforts examined the drivers of maritime insecurity, examined current coalition maritime security operations, shared lessons learned from maritime security actors and identified challenges to and opportunities for international cooperation, with a special emphasis on information sharing in operations and maritime domain awareness. Key events included a conference on "Pirates, Port, and Partners" co-hosted with the U.S. Naval War College (**http://www.acus.org/ event/5407**) and workshops with senior government officials. One of the key findings from the conference was the recognition of well intentioned yet uncoordinated and therefore ineffective maritime security efforts. This issue brief is a product of the Council's maritime security initiative.

develop procedures to prevent their occurrence in the future. Not surprisingly, aviation security increasingly relies on sophisticated scanning sensors at airports and a web of

international databases to validate cargo (mostly people) before loading.

But is it enough? Have we completely eliminated, or at least sufficiently mitigated, aviation vulnerabilities? How will future terrorists view their chances of penetrating aviation security? **If they are deterred, might they turn to a less understood and defended domain — our maritime industry and waterways?**

The Detroit incident highlighted two key points: first, the advantage of integrated, shared and properly analyzed information with sophisticated automated rule sets to alert authorities of anomalies; and, second, the consequences of having the information available, but not properly shared and vetted. This issue brief addresses how sensor information and other data might be collected, shared, analyzed and used to determine if a particular ship and its cargo should be permitted to enter into our inland waterways and ports.

## Uncoordinated Maritime Information Exchanges

There are a number of national and regional efforts to promote maritime information sharing such as the Virtual Regional Maritime Traffic Center (VRMTC), the Maritime Safety and Security Information System (MSSIS), the Long Range Identification and Tracking (LRIT) and the Regional Co-Operation Agreement on Combating Piracy and Armed Robbery against Ships in Asia. All of these activities appreciate the value of maritime information especially as it advances security. The United States participates in and sponsors several of these initiatives.

But these programs are ad hoc, suffer from a lack of coordination and are incompatible with one another. They also face policy, legal and cultural barriers, all of which can negatively affect information sharing. Adding to these challenges, there continues to be significant coverage and communication gaps between these uncoordinated initiatives; the net result of which is less effectiveness. A new model for information sharing, one that can overcome these issues, will improve maritime security and safety.

## A Model for an International Information Maritime Safety and Security Exchange (IMSSE)

As trade in the 21st century continues to be shaped by globalization, the maritime domain will become increasingly vulnerable to a wide range of nefarious activities each of which can have cascading and harmful effects far from their sources. Such activities are inconsistent with U.S. national security interests and the broader objectives of peace, prosperity, stability and security. **Global maritime security as it exists today lacks structure, governance, resources, common information exchange protocols and standardized rule sets.** As in aviation security, proactive maritime security professionals must be able to detect an anomaly – then deliberately intervene.

The critical enablers of proactive maritime security require an understanding of what information is needed, who needs the information and how to expediently exchange the information. Today, for example, various national, regional and local authorities levy legitimate information requirements on shippers and shipping lines. Frequently, the shippers and shipping lines collect, prepare and provide the data repetitiously in varying formats at different times. For commercial stakeholders, there is no obvious correlation between these redundant and costly exercises and any apparent value (e.g., improved cargo delivery cycle time). Likewise, government authorities face volumes of raw information with little or no ability to analyze it with an automated rule set. **The maritime security community is ripe for a rebirth – like aviation after 9/11 – that incorporates an innovative model that harmonizes information gathering and sharing, and provides authorities with the tools to improve their remit.**

**Conceptually, global maritime safety and security can be thought of as a marketplace consisting of maritime stakeholders all of whom share a common bond for a safe and secure infrastructure.** Every stakeholder is invested in common maritime enablers of some sort to realize their unique commercial or governmental objectives. Increasingly, maritime domain users, both public and private, are cooperating and forming networks to streamline commerce and mitigate or counter disruptions and threats. Yet, these isolated and temporary networks fall short of the global and institutional enhancements needed for comprehensive maritime safety and security.

An alternative to the present reality is to institute an International Maritime Safety and Security Exchange (IMSSE). Exchange business models (EBM) are standard in the financial, health, industrial and government sectors. Essentially, EBMs connect providers and consumers through the exchange of some product or commodity. In this example, the commodity is information needed for security and profitable commerce. This proposal brings together members of the IMSSE for the willing exchange of maritime information in support of their own safety, security and commercial needs. The IMSSE should take on a revolving door approach that allows members to consume and/or provide maritime information. Structured in this way, an IMSSE will permit consumers and providers to realize the symbiotic relationship on which long-term global maritime commerce and security depends, in spite of differing self-interests.

Understanding the characteristics of an IMSSE is an important step to realizing a sustainable model for maritime safety and security.

- **Value of Safety and Security:** Maritime safety and security is viewed differently by various participants. Thus, the overriding driver for the IMSSE will be the interpreted value of the safety, security and speed of cargo delivery achieved. The challenge for the IMSSE will be in understanding how to provide and measure this value across the full spectrum of participants.

- **Governance:** The IMSSE's organizational and governance structure will provide policies and procedures that govern the collection, aggregation, analyses, and dissemination of information. Both governments and commercial interests must be represented in the governance structure.

- **Architecture:** The IMSSE's architecture will be framed around the information, security, and technical aspects that enable the exchange to operate.

- **Resources:** A sustainable IMSSE will rely on both governmental and commercial member financial contributions for development, operations, sustainment and capital investments.

## Challenges and Suggested Strategies

Launching the IMSSE will require change in the status quo. The IMSSE should leverage ad hoc, informal and temporary partnerships to overcome any disruptive perceptions. The IMSSE must be able to build on these efforts, adapt best practices and work towards a business model that satisfies both commercial and governmental needs. Specifically, the IMSSE will need to:

- **Align Incentives and Expectations:** To attract and retain participants, the IMSSE needs to align the incentives of the exchange to participants' self interests. Governments will expect the information to be the vital link for actionable and preventive assurances to confidently ensure ships and cargo on inland waters are safe. Commercial enterprises favor enhancements that promote the safe and expedient delivery of cargo. Bottom line: Everyone wants safety.

- **Foster International Government Leadership and Oversight:** Governments, the final arbiters of travel within their exclusive economic zones, must be committed to the IMSSE.

  - Countries, regions and ports have unique needs. While the IMSSE must be universal in what information is exchanged, it must also accommodate geo-specific requirements to the maximum extent practical.

  - One of the more apparent yet daunting challenges will be the development of common governance protocols. The IMSSE must take on an international, commercial-friendly, government-led, coordinated, transparent and low cost approach when developing these protocols.

  - The IMSSE must have international legitimacy. This could be conferred by aligning the IMSSE with an existing international organization(s) such as the United Nations.

- **Identify or Create Data Standards:** The IMSSE will need to use a common taxonomy and information protection system. There must be concise definitions and clear understanding of data standards and protection among all members if the IMSSE is to have a reasonable ability to rapidly obtain, dynamically transfer and securely store data from a variety of disparate

systems and initiatives. Data warehousing is a promising mechanism.

## Conclusions and Next Steps

The world's transportation infrastructure is vulnerable to terrorists as they seek to intimidate nations and citizens through fear. Attacks like 9/11, the Madrid train attack, the London subway bombing, and the Mumbai assault send a clear signal terrorists are waging a global war. Governments have reduced, and continue to reduce, vulnerabilities in transportation systems. Aviation security has been the most visible.

But governments and the commercial sector have been noticeably less creative and aggressive with ports and inland waterways. Much can be learned from the trials and progress of the aviation community, in particular:

- the potential strength of integrated and shared information – properly analyzed with sophisticated rule sets – to alert authorities of anomalies; and

- the frightening and frustrating consequences of having available information not properly shared and vetted.

To move ahead with the IMSSE concept, it is imperative to:

- identify a lead U.S. Government department or agency with the capacity to synchronize all USG maritime security activities and engage international partners;

- determine what information requirements are necessary to safely allow ships and cargo to ply our inland waters and enter our ports; and

- develop, asses, and validate the processes and technologies in a limited pilot demonstration.

**The maritime domain has the opportunity to make significant progress in maritime security *if* existing nascent information exchange initiatives are brought together in a formal government-led International Maritime Safety and Security Exchange.**

*May 2010*

### International Security Program

The Program on International Security shapes and influences the debate on international security by facilitating dialogue through critical analysis and policy-relevant programming on the greatest security challenges facing the United States and the trans-atlantic community. The Program on International Security builds on its extensive network of experts and practitioners in North America and Europe to inform policy and to introduce ideas into the public debate. The Program influences policy and shapes ideas by publishing task force reports and analytical issues briefs, providing a public speaking platform for leaders in international security, briefing policy-makers and national security leaders in private strategy sessions and hosting working groups to tackle the most complex challenges in international security. For more information, contact Vice President and Director of the Program on International Security Damon Wilson (**dwilson@acus.org**) or Assistant Director Magnus Nordenman (**mnordenman@acus.org**).

# Maritime Information Services of North America
## and
## Marine Exchange of Puget Sound
## at

*John Veentjer*
*Executive Director, Puget Sound Marine Exchange*
*President, Maritime Information Services of North America*

09-15-10
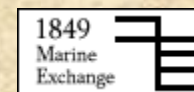
Non-profit organizations established to serve their local maritime community independently and beyond their local community as a coalition providing information, communications and related services to ensure safe, secure, efficient and environmentally responsible maritime operations.

1849 Marine Exchange


Telegraph Hill San Francisco 1850
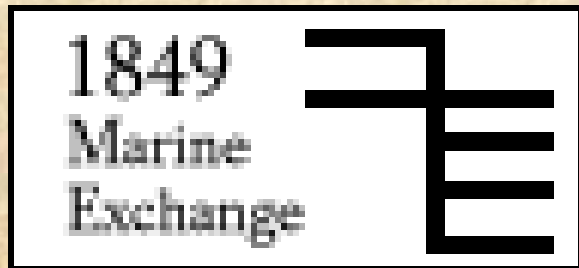
# Marine Exchange of San Francisco Bay Region

## Marine Exchanges Date Back to 1800's

- Established to broker information on vessel arrivals

- First Marine Exchange's used telescopes to spot vessels and semaphore to relay information

- Today Exchanges use radars, radios, AIS, e-mail, the internet, and satellite transponders to collect and broker information on vessels.


San Francisco Exchange 1857

# MARINE EXCHANGE
### OF PUGET SOUND

**Services we provide:**

- **Monitoring and tracking of deep draft vessels.**
- **Information on shipping activities in the Puget Sound and Grays Harbor.**
- **Answering Services.**
- **Regional FA for Round 9 and 10 of PSGP**
- **Administrative services to various maritime organizations, e.g., Harbor Safety Committee, Washington State Maritime Cooperative, Area Maritime Security Committee, etc.**

# MARINE EXCHANGE
# OF PUGET SOUND

**Services (continued):**

- **Manage the West Seattle Buoys**

- **Statistical Reports**

- **Serve on the Olympic Coast National Marine Sanctuary Advisory Committee**

- **Serve on the Area Maritime Security Committee (AMSC)**

- **Industry representative on Northwest Association of Networked Ocean Observing Systems (NANOOS)**

- **Member Maritime Information Services of North America and National Association of Maritime Organizations**

# **Monitor Vessel Movements**

- **24 hour/7 day watch**
- **Monitor status of vessels from projected arrival to arrival to departure**
- **Collect information from various sources, e.g., operators schedules, agents, pilots, CG VTS, etc.**
- **Inform member/customers with need to know**
- **Extensive database of vessel activity**

Maritime Information Services
of North America (MISNA)

Alaska

Vancouver, B.C.

Puget Sound

San Francisco

Portland

New England

New York/New Jersey

Southern California

Mississippi River

Philadelphia

Baltimore

Houston

Hampton Roads

New Orleans

Jacksonville

Container

Cruise Ships

Ports and Terminals

Tugs and Barges

**MISNA**
Customers and Clients

Trampers & Bulkers

Tankers

Small Passenger Vessels

Fishing

Ferries

Coast Guard and other agencies

# Governmental Customers
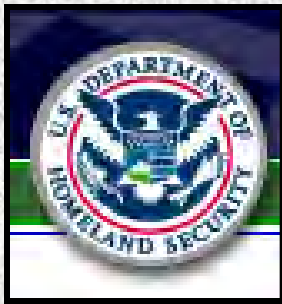


Customs and
Border Protection


Office of Naval Intelligence


U.S. Department of Transportation
MARITIME ADMINISTRATION


NOAA NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

Ports and States

U.S. COAST GUARD

150+ MISNA Sites Operational
Approximately 300,000 sq miles of MDA
*Largest AIS Network in the World*
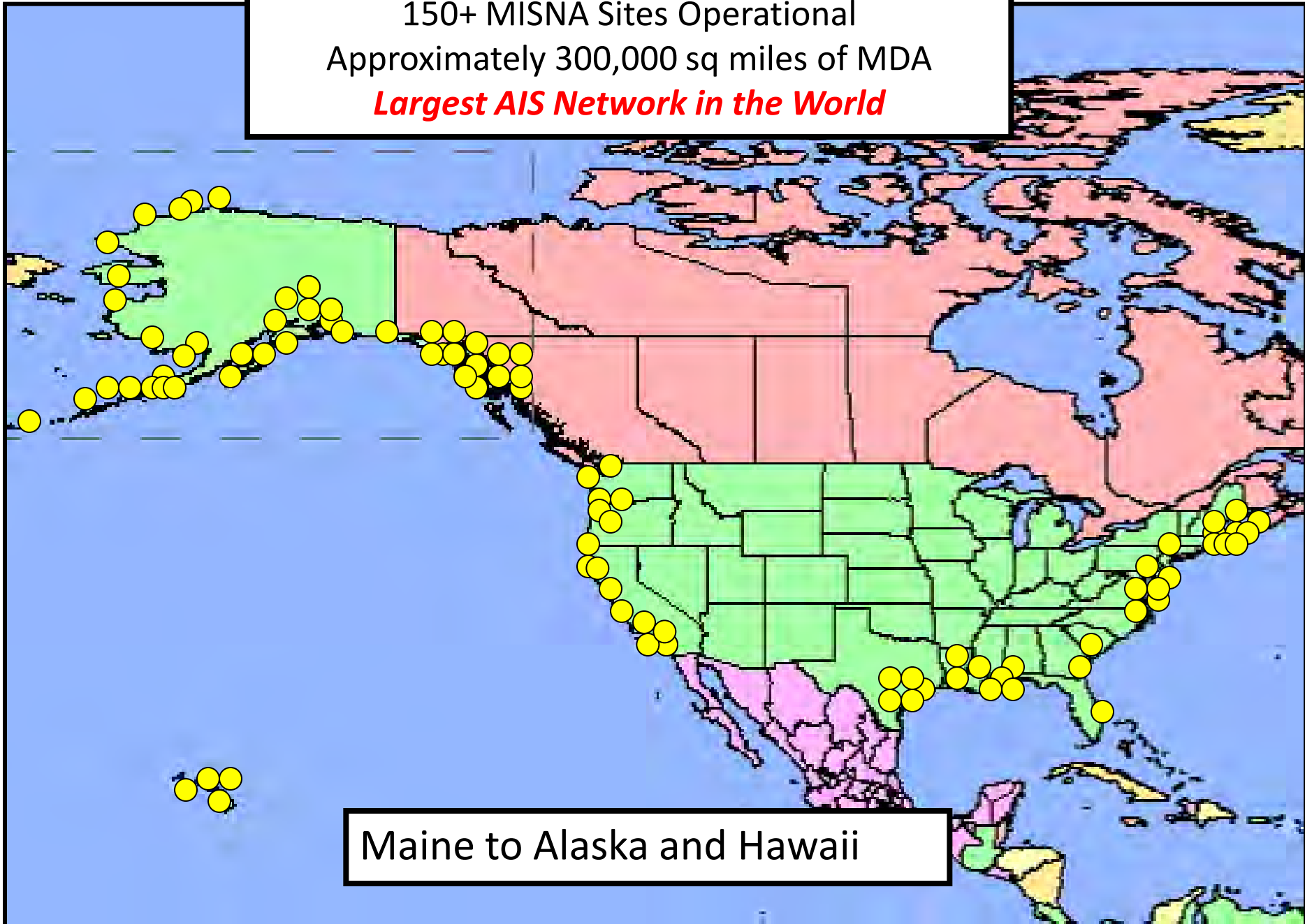
Maine to Alaska and Hawaii

# Installations at Lighthouses and Remote Areas
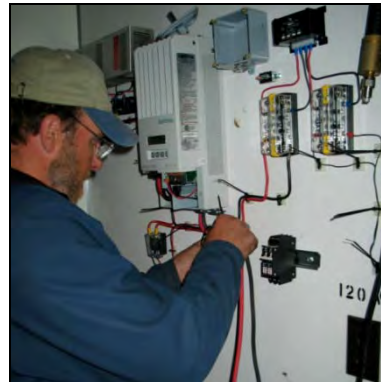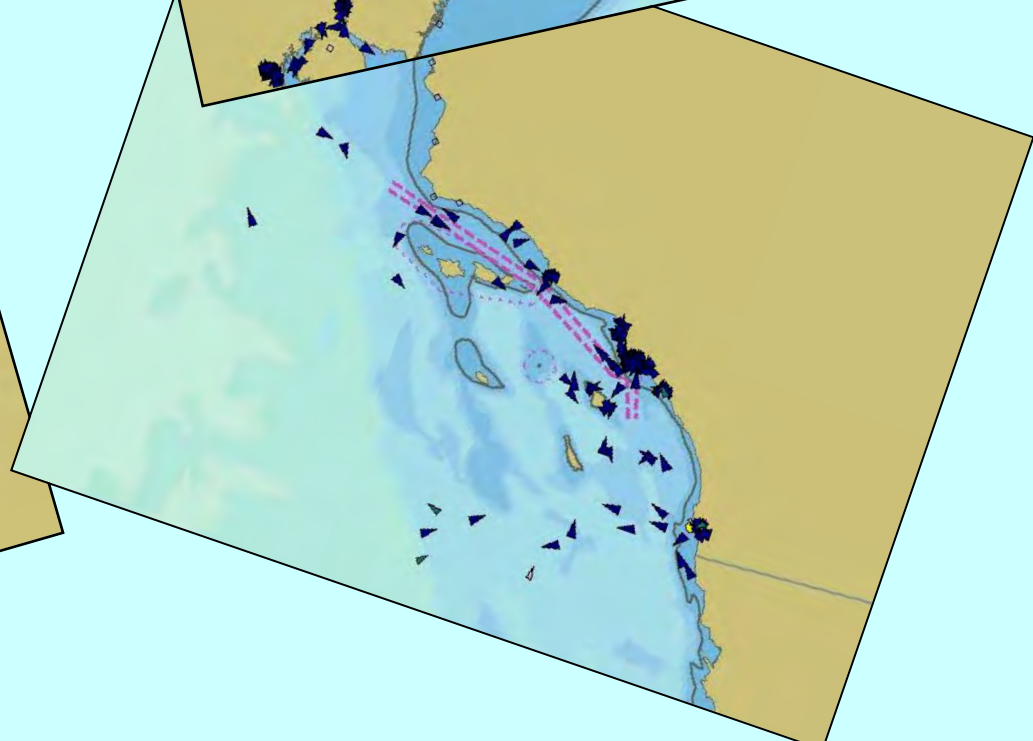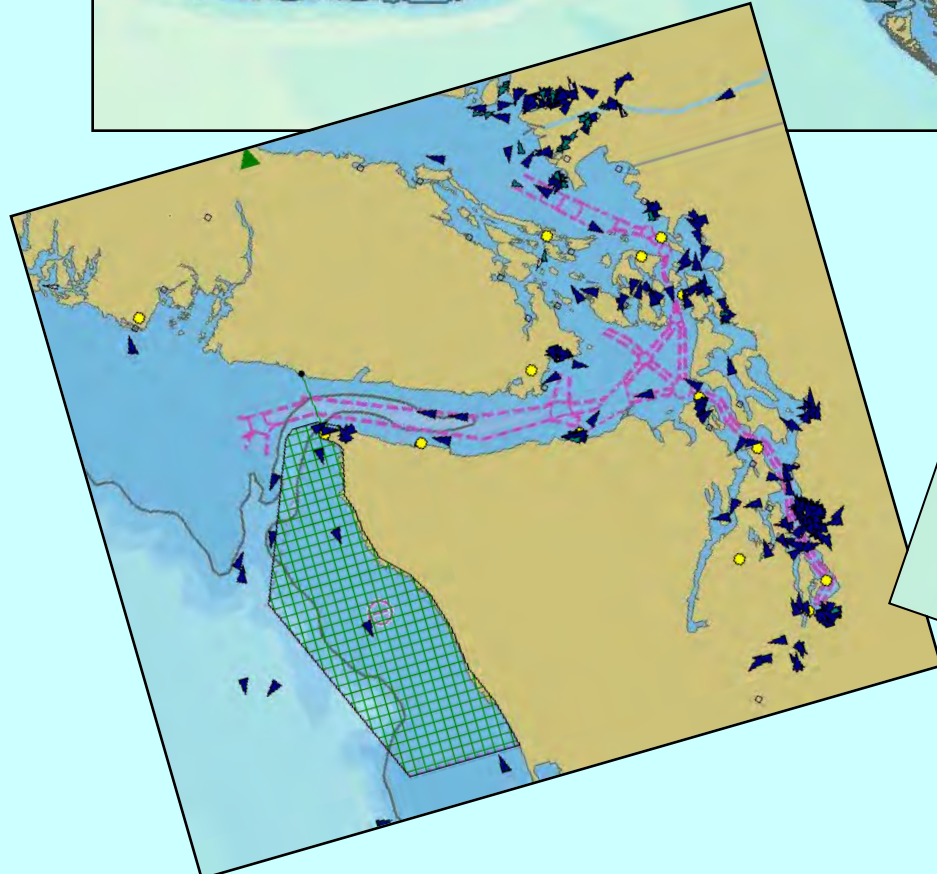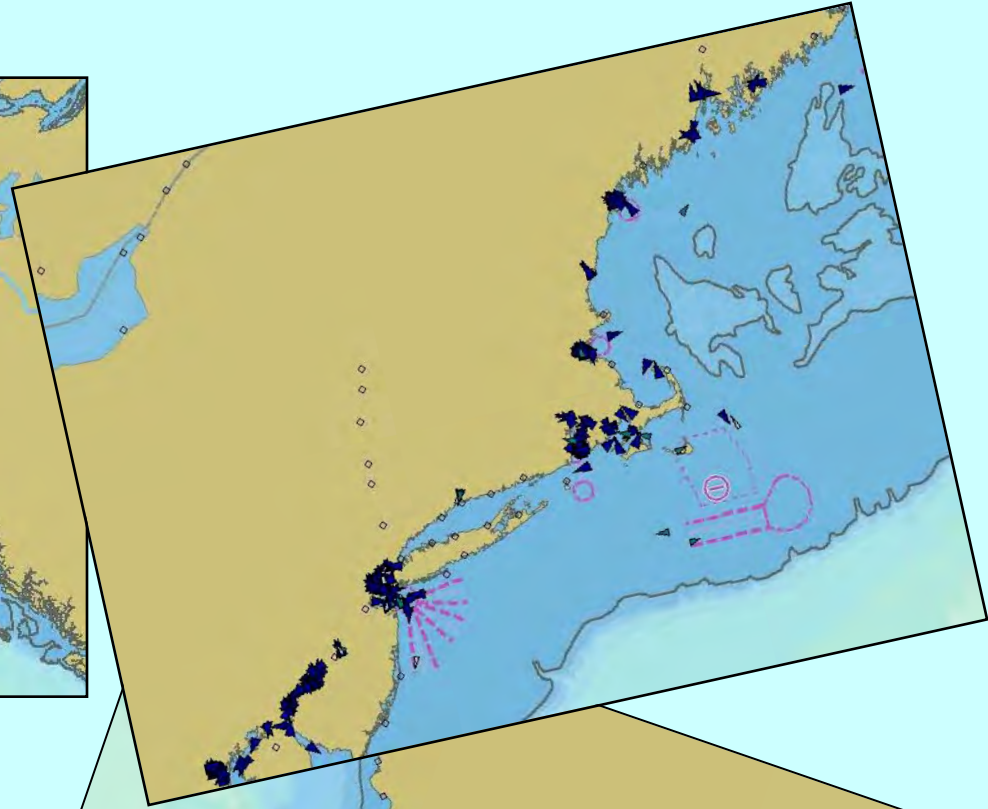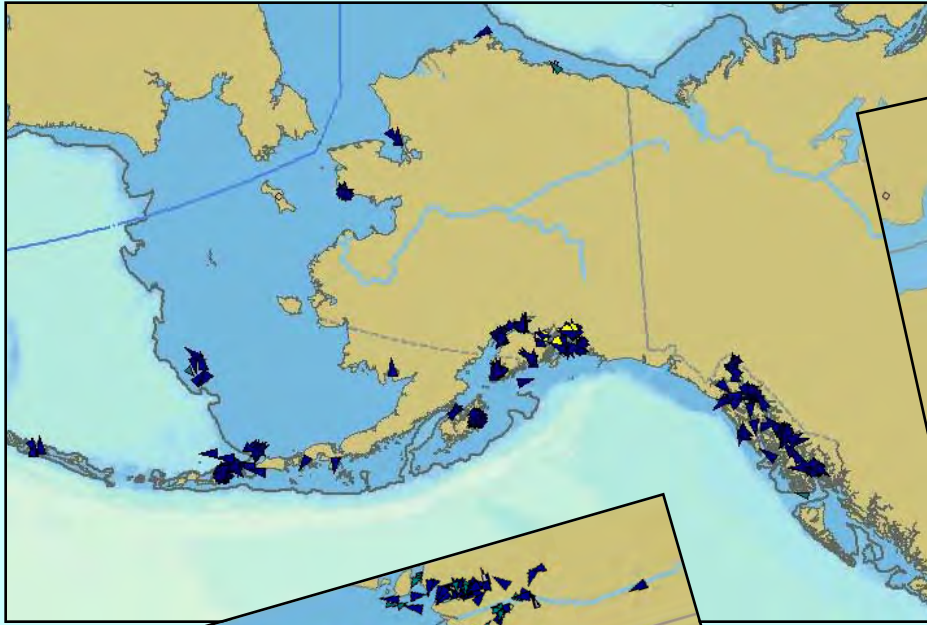
**MISNA Vessel Tracking**
North America AIS and V-LRT
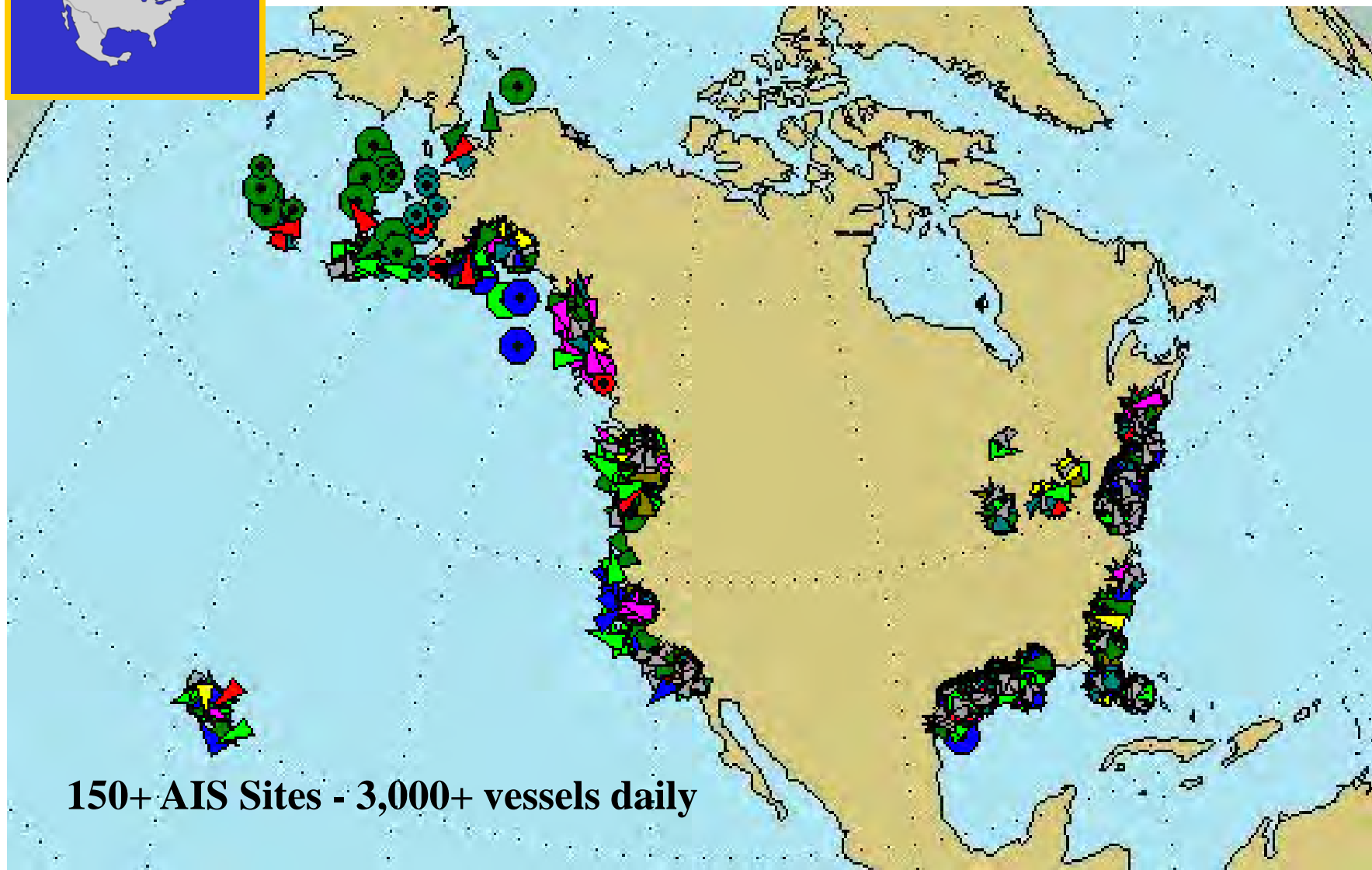
**150+ AIS Sites - 3,000+ vessels daily**

# Vessels Operating in Alaska
# Voluntary Participation in V-LRT
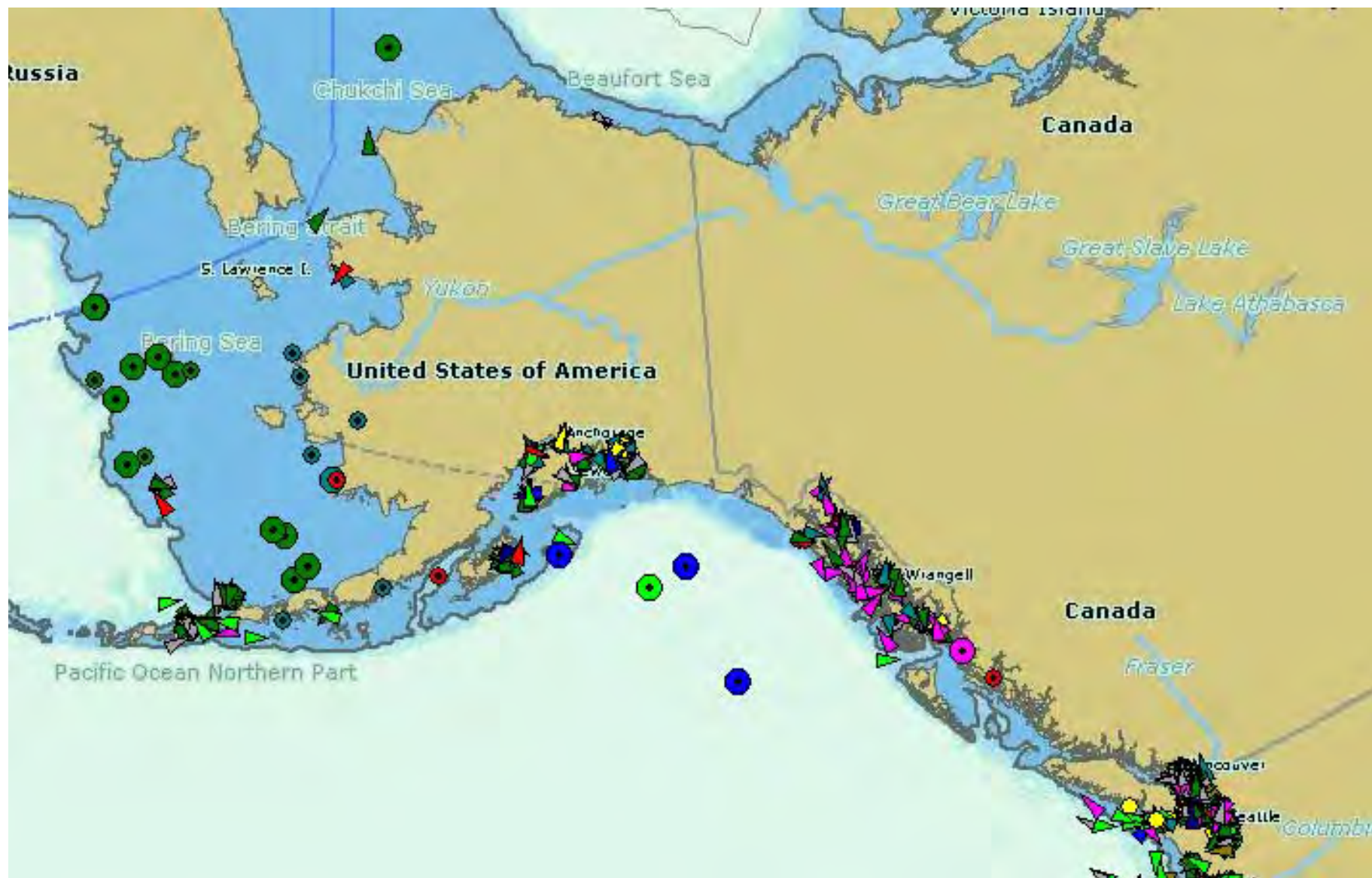
# Why Track Vessels?

- Safety Net

- Risk Assessments

- Environmental Protection

- Validate Compliance

- Emergency Response

- Improve Efficiency

- Maritime Security



M/V Selendang – Lost Power
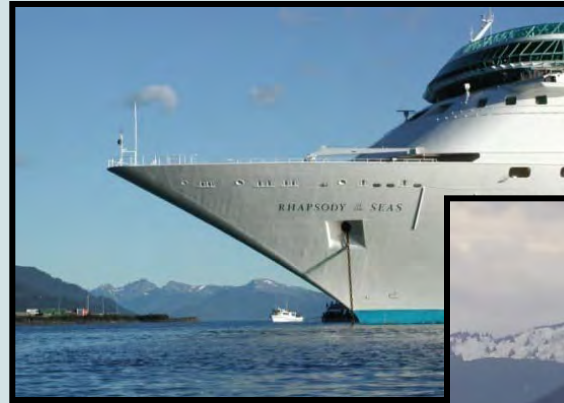
*MISSION: Aid Safe, Secure, Efficient and Environmentally Sound Maritime Operations*

# Unimak Pass Vessel Traffic
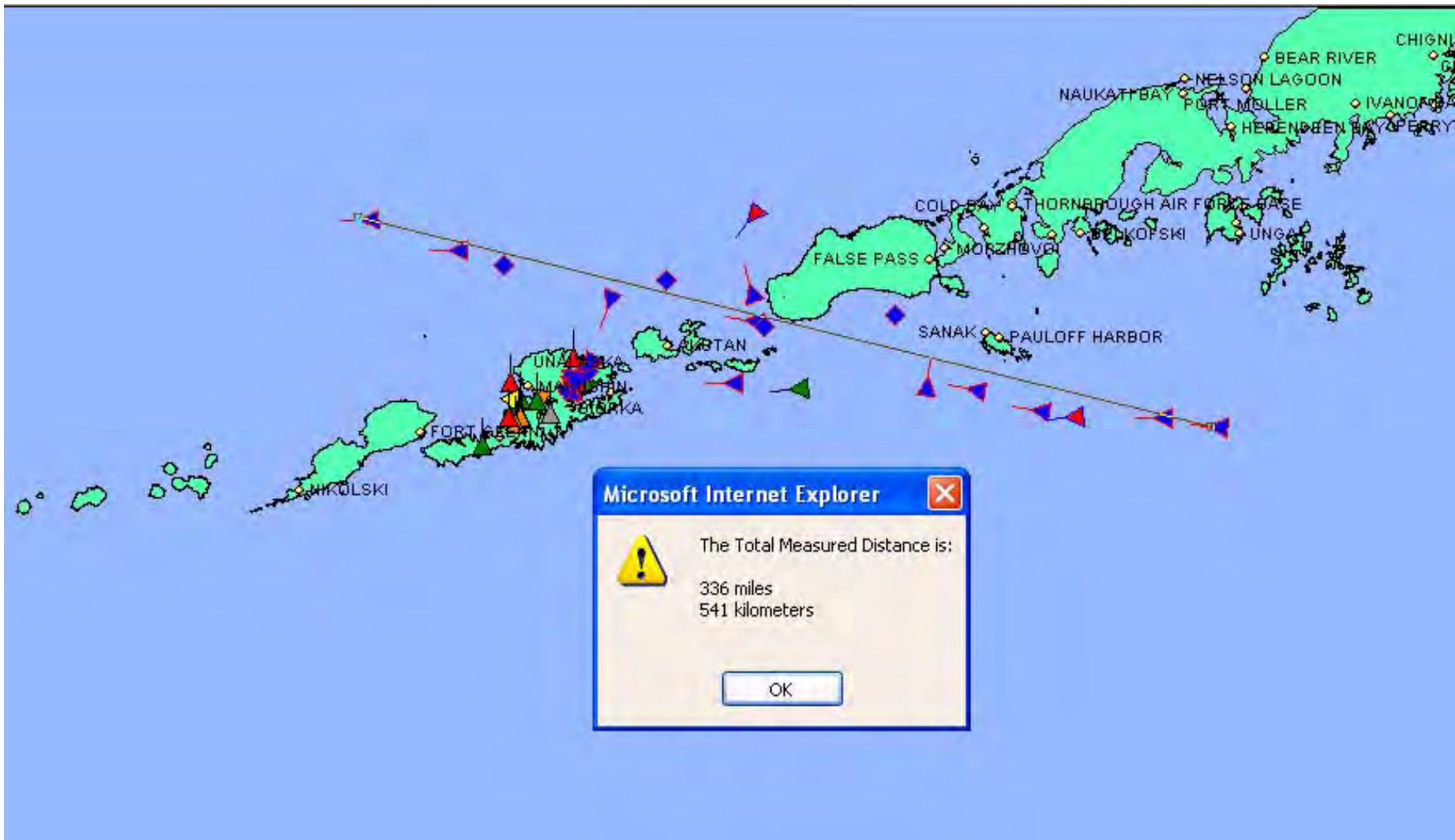
# Aleutian Islands Vessel Traffic Monitoring and Risk Assessment
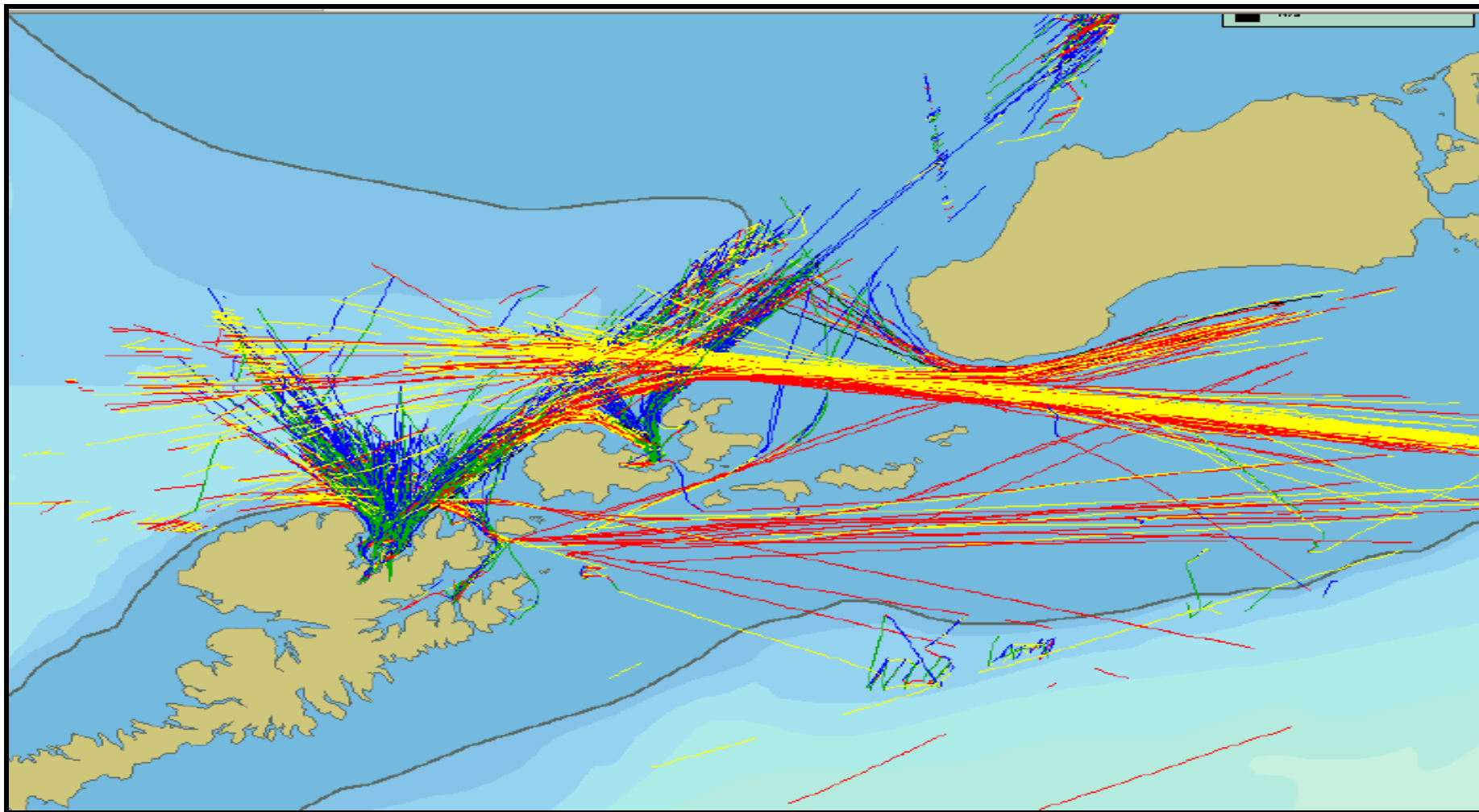
# Emergency Response and Investigation
Passenger Vessel Empress of the North
Grounding and Abandon Ship
**Icy Strait, Alaska**
**14 May 2007**

Grounding Location

Marine Exchange Vessel Tracking Site
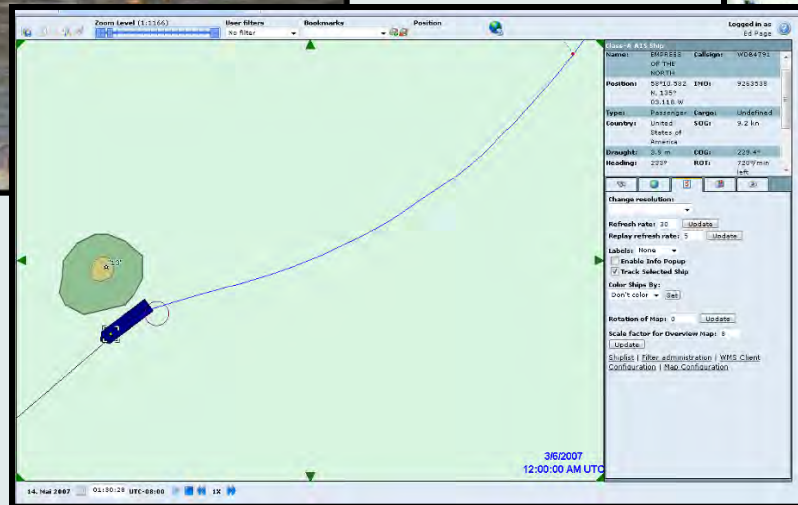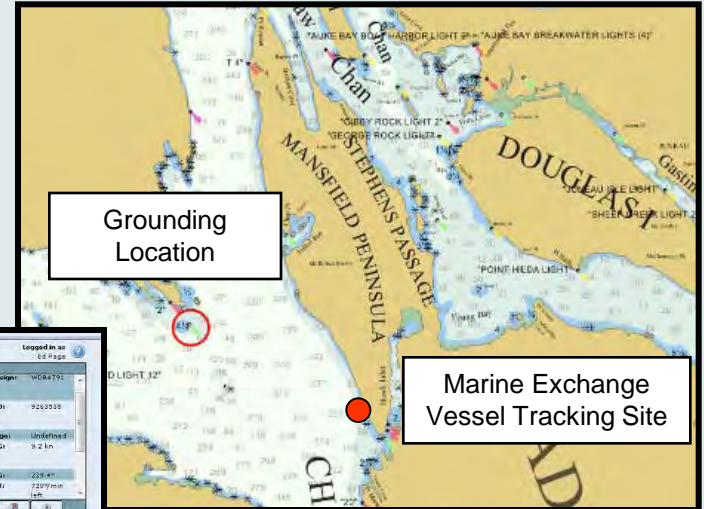
Vessel Tracked with MISNA Automatic Identification System
Information available to aid emergency response and investigation

# Monitoring the "Area to be Avoided" Olympic Coast National Marine Sanctuary



AUTOMATED NOTIFICATIONS
"WATCH DOG ALERTS"
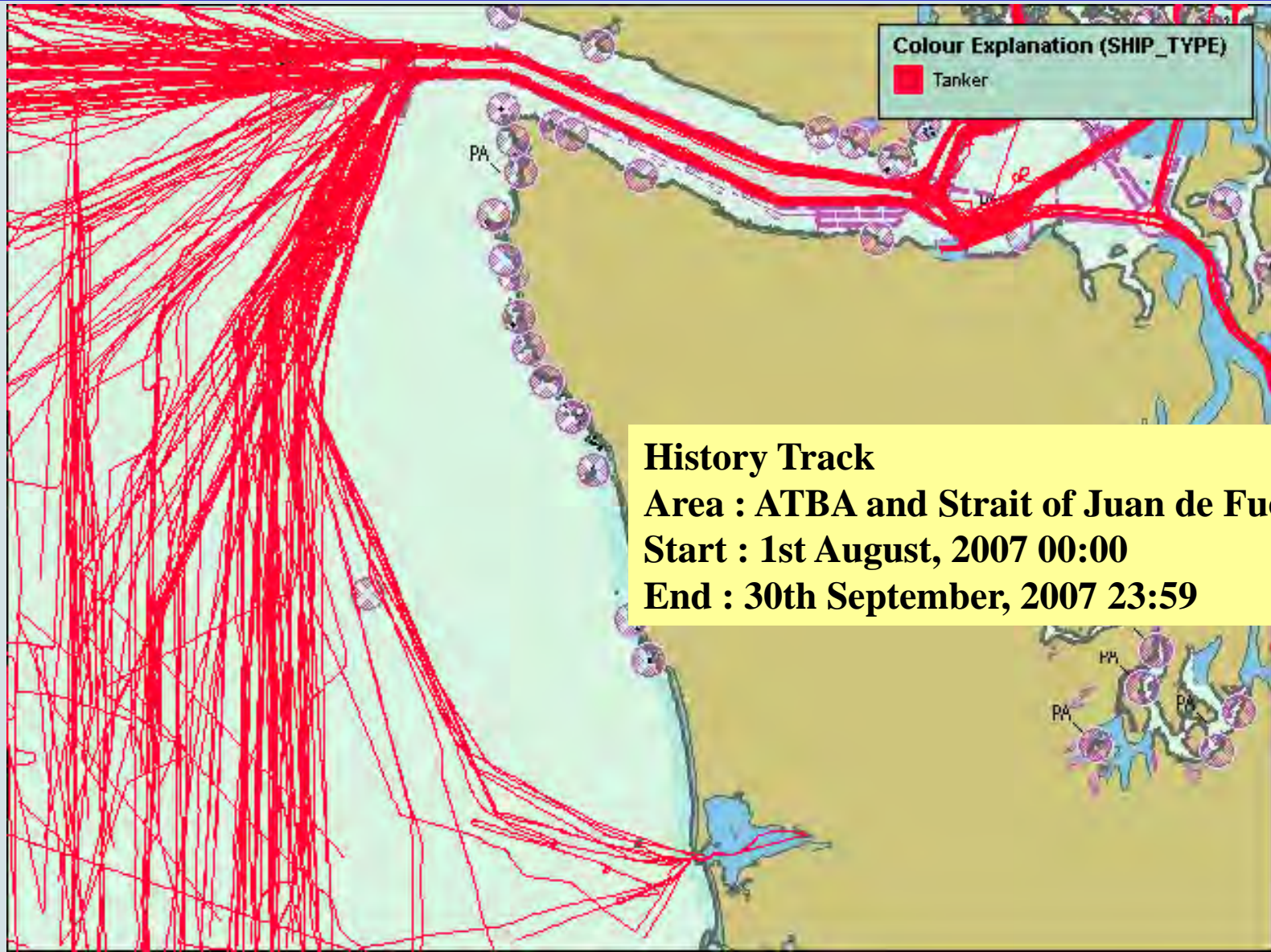
# **Summary**

- Long established
- Non-profit
- Local private sector members
- Vessel activity / tracking **information**
  - real time
  - historic
- Many 24/7 operations
- Local maritime **communications**
- Building **relationships**, e.g.,
  - Local maritime community workshops
  - e.g., significant player in MIST workshops

# Marine Exchange/MISNA
# Vessel Tracking Information Flow
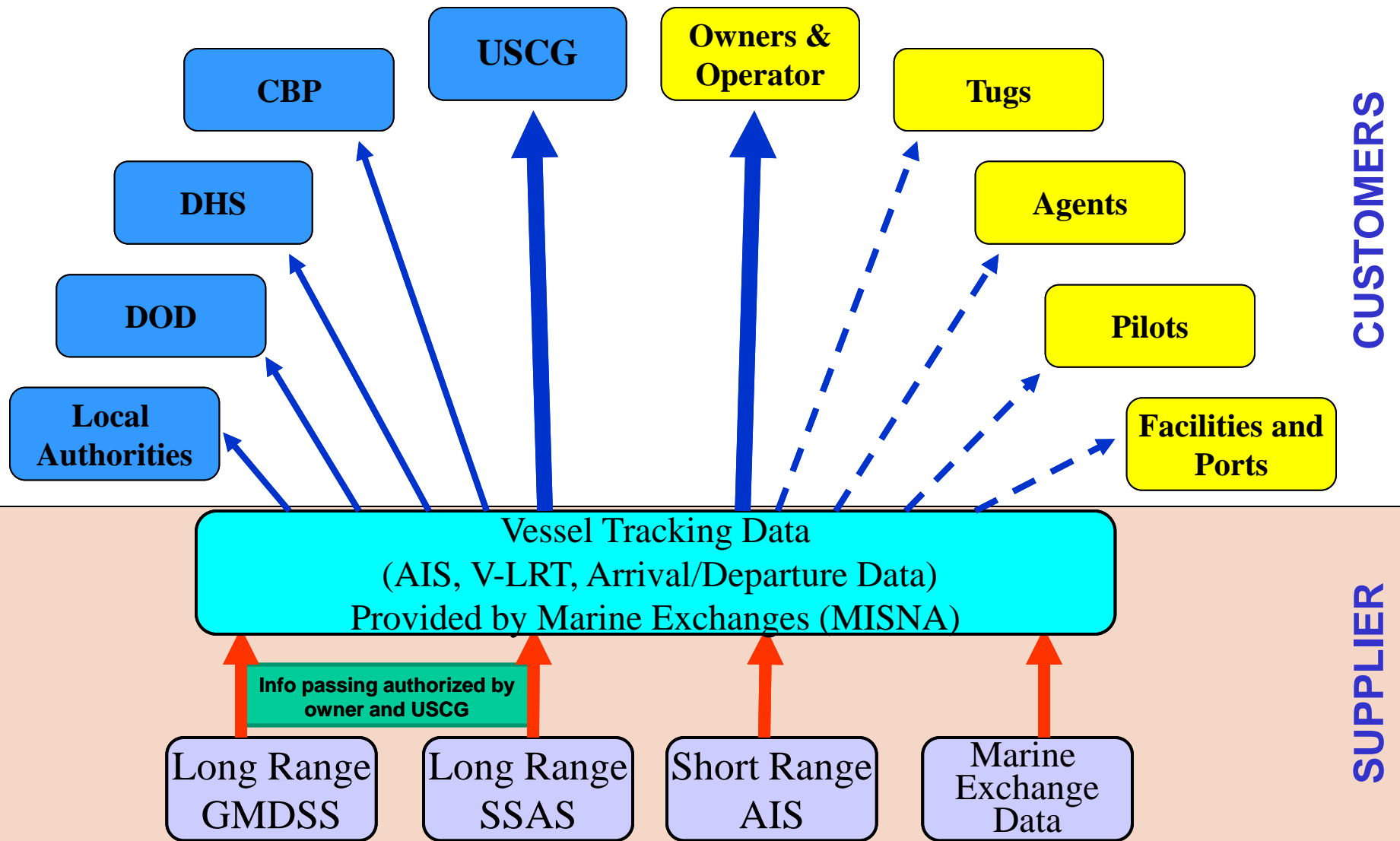
# MISNA can assist in several pieces of the full MDA picture

**AIS Tracking**

**Arrival/Departure Data**

**Long Range Tracking**
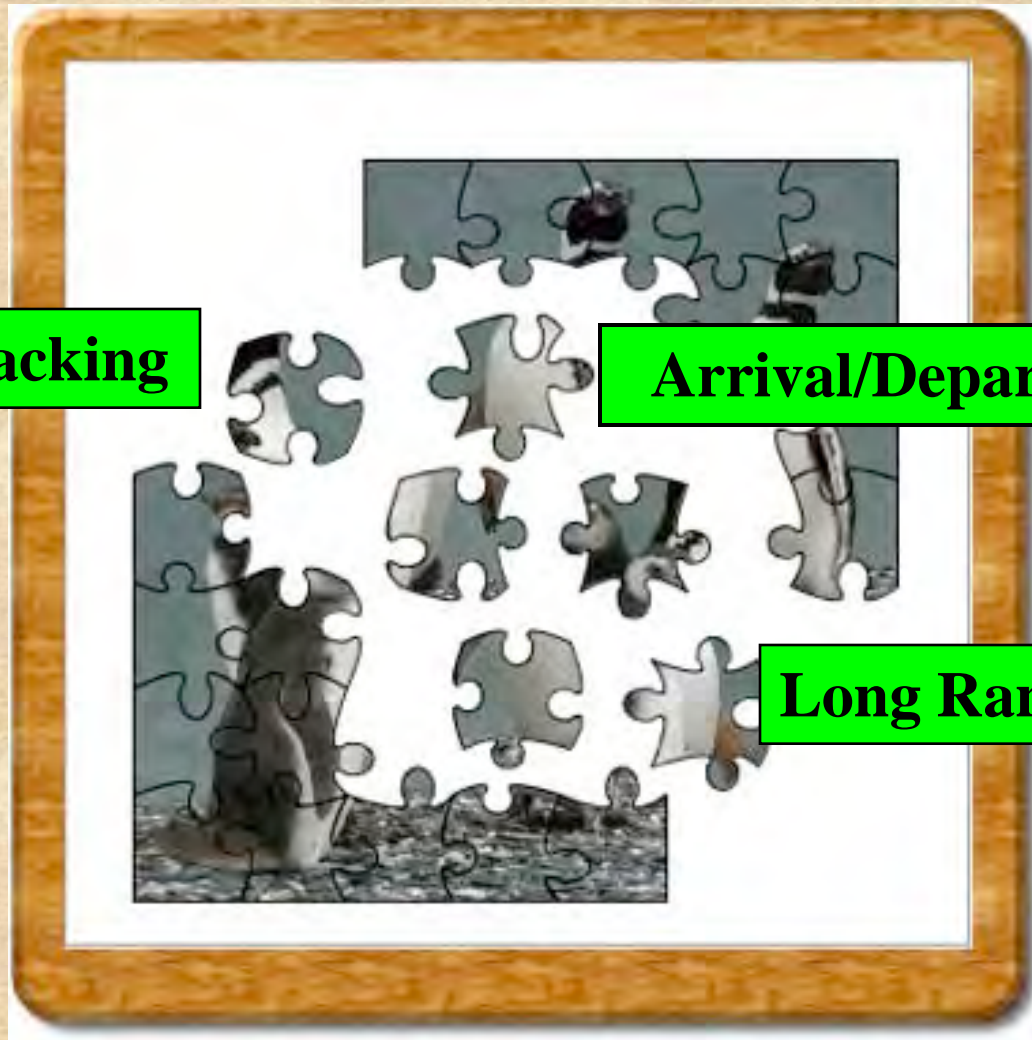
# IT'S ALREADY HAPPENING,

# MAYBE WITHOUT YOU

# Maritime Information Services of North America

*A non-profit maritime organization established to provide information, communications and services to ensure safe, secure, efficient and environmentally sound maritime operations.*

## Points of Contact

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Ed Page, Captain, USCG (Ret)
Executive Director
Marine Exchange of Alaska
epage@mxak.com
(907) 463-2607

**Or your local Marine Exchange**
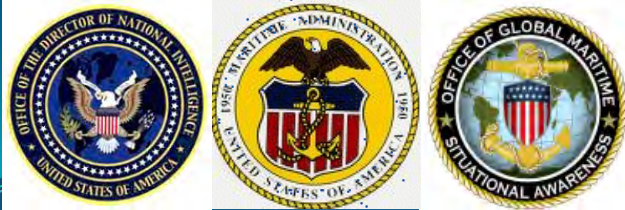
# Facilitated Federal & Private Sector Information Sharing

- Challenge
  - Include the private sector in national MDA efforts
  - Gather local perspectives of practitioners
  - Provide value to the private sector

- Purpose
  - Provide a process for two-way sharing of threat information
  - Provide a forum for mutual problem solving around MDA issues

- Current sponsors and stakeholders
  - Maritime Defense & Security Research Program (NPS)
  - Maritime Administration (US Department of Transportation)
  - USCG, MARAD, GMSA & GMAII, NCAGS and GMISS

- Status
  - August 2008: Piloted at MIST Long Beach/Los Angeles
  - May 2009: Modified and expanded for MIST Puget Sound
  - FY2010: MIST Honolulu HI (November 2009),
  - MIST Delaware Bay (September 2010),
  - Intermodal and International application discussions

# The Process

# Capturing Data on Information Sharing

- Collaboration
- *"The further away you get from the flag pole of Washington DC, the smoother the flow"*

- Communication
- *"When we're on the dock if I don't know anything about it, it doesn't do any good"*

- Incentives & motivations for sharing
- *"First you have to show me that there really is a threat out there— that's why we're spending all this money on it."*

- Information quality
- *"Give us something to work with. Is it homegrown eco-terrorists or international level cells I need to worry about?"*

- Information delivery
- *"We need to have some synergy…if you have everyone calling in, what is the infrastructure to direct the information?"*

- Streamlining government
- *"Choose a system and improve it, rather than improving all ten."*

# Record Recommendations

- Collaboration
  - Increase institutional support for interagency collaboration
  - Align regulations with business rules and practices
- Communication
  - Align strategic communication with safety concerns
- Incentives & motivations
  - Incentivize resource sharing
- Information quality
  - Provide all hazard, situational awareness, financial /operational impacts, neighborhood alerts, resource information
  - Ensure information is regionally targeted, up-to-date and synchronized, intermodal, actionable, relevant, usable, trustworthy, accurate, simple
- Information delivery
  - Push data to the private sector, allow anytime/anywhere access
  - Scrub classified data
- Streamlining government
  - Federal efforts should provide value and be sustainable
  - Modify requirements to address the impacts of the economic downturn

Problem solving

Synthe Relationships

# Next steps & sustainment- From Honolulu

- Creation of unified exercises- State DOT Harbors

- Improve union relationships- Agent Representative

- Expand Face to Face relationship opportunities with unions, HHUGS, HOST- AMSC

- Improve alert & warning system- USCG Sector Honolulu

- Improve consistency and realism of ICS exercises- AMSC

- Update State communications grid- eliminate faxes- State DOT Harbors

- Try MARVIEW as a tool for information sharing- USCG & All

- Provide feedback to MARVIEW on usability- NPS MIST team

- Reconvene a MIST like group that crosses over industries & roles- State DOT Harbors

# We are responsive to the needs of stakeholders
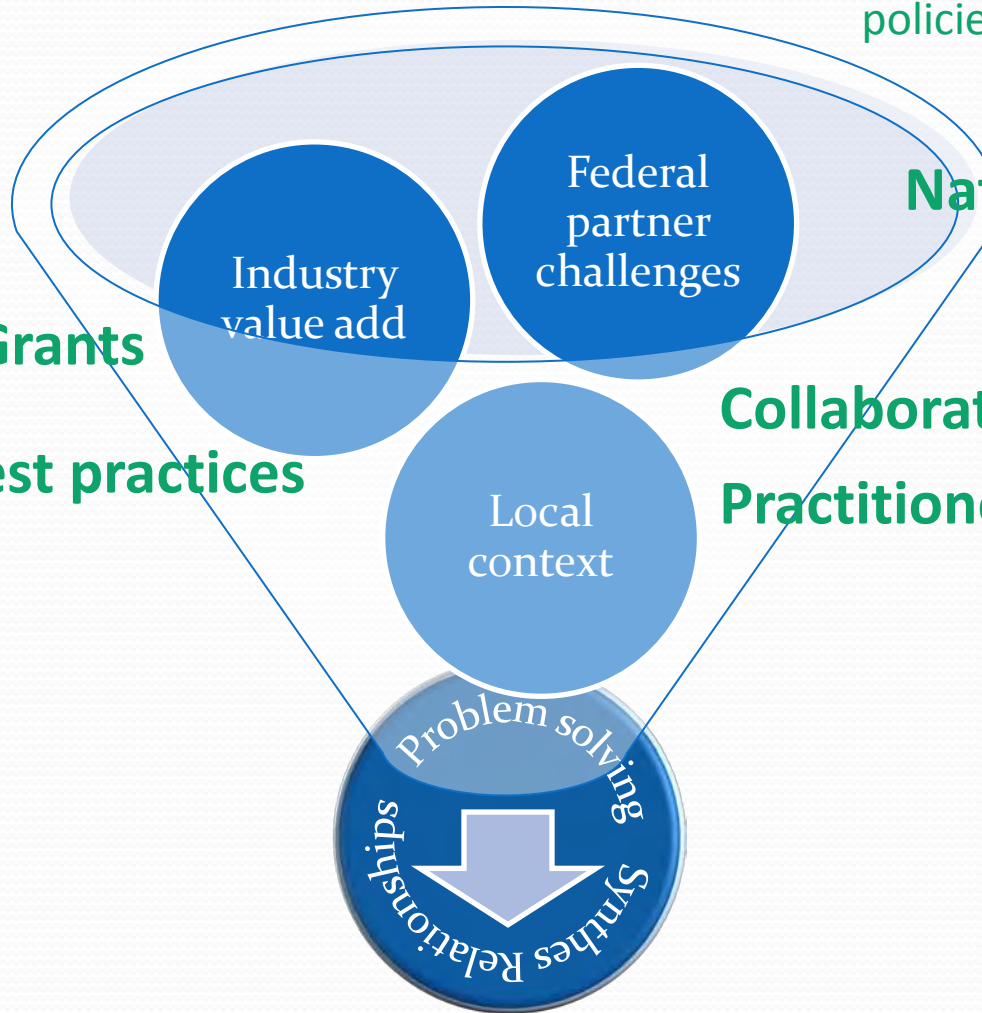
# Questions?

Wendy Walsh, Program Manager

Maritime Defense & Security Research Program

Naval Postgraduate School

wdwalsh@nps.edu

831-656-2197

831-917-5923

# *Port Safety & Security Technologies*

GMISS

*Global Maritime Information Sharing Symposium*

2010

September 14-16, 2010
**Baltimore, Maryland**

# *Summary*

- **Rescue 21**

- **Homeport**

- **Interagency Operations Centers**
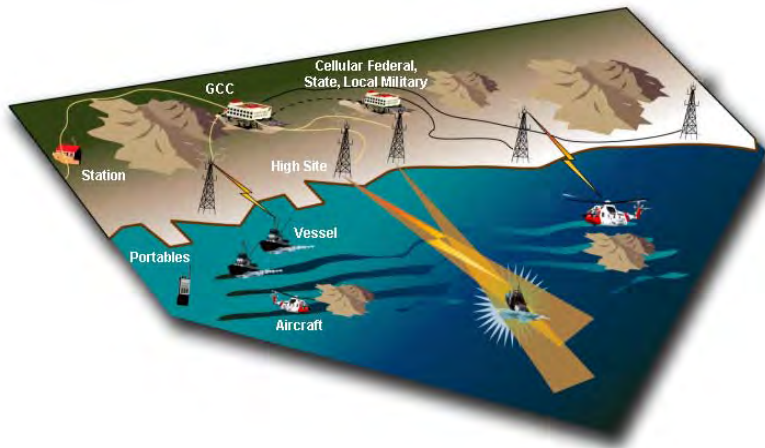
# Rescue 21

# Digital vs Analogy

RFF Riverton (BA)

RFF Leonardtown (BA)

RFF Farnham

RFF Berlin

RFF Chincoteague

RFF Richmond

RFF Belle Haven

RFF Newport News

RFF Cape Charles

RFF Pungo Field
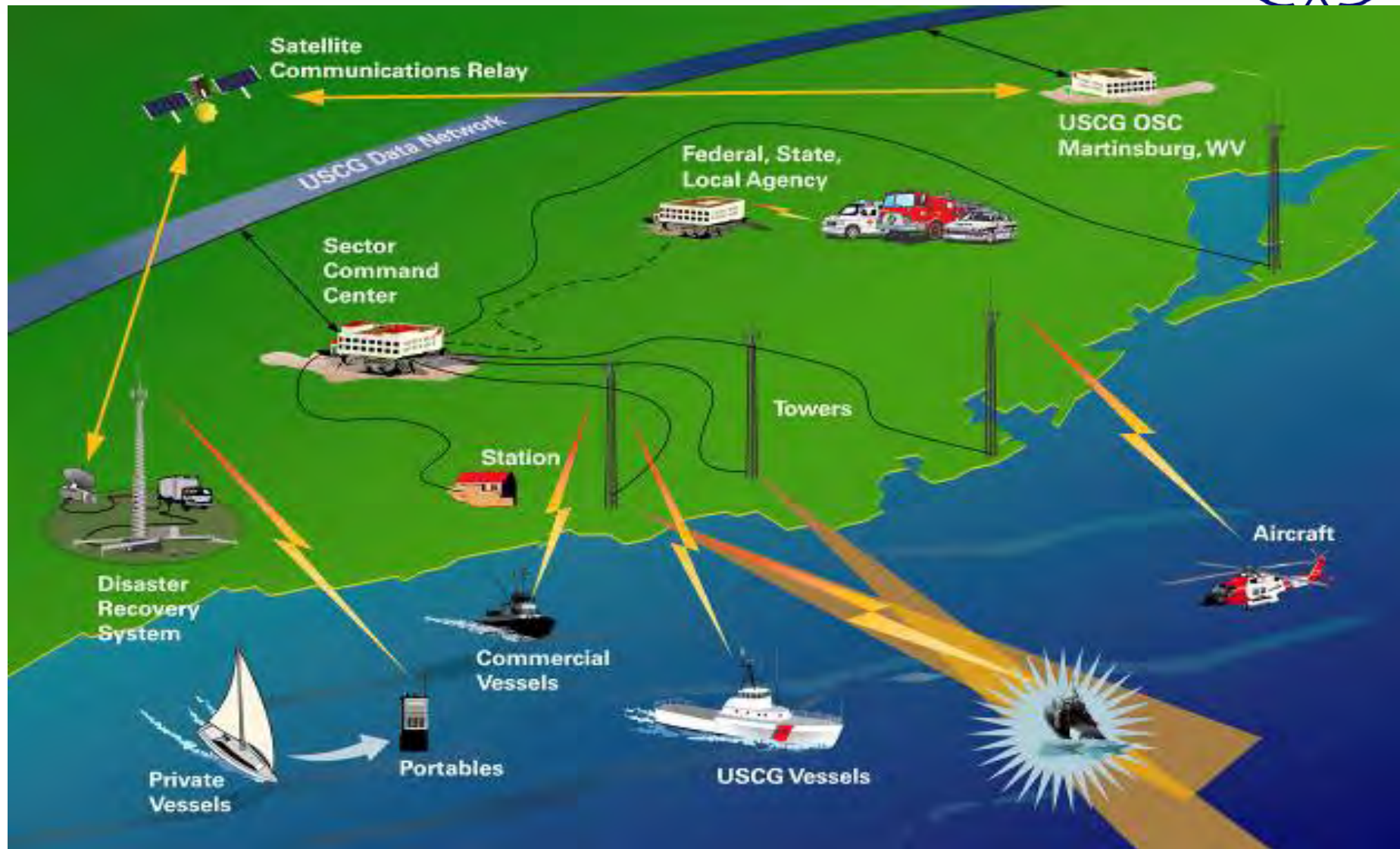
= Digital

= Analog
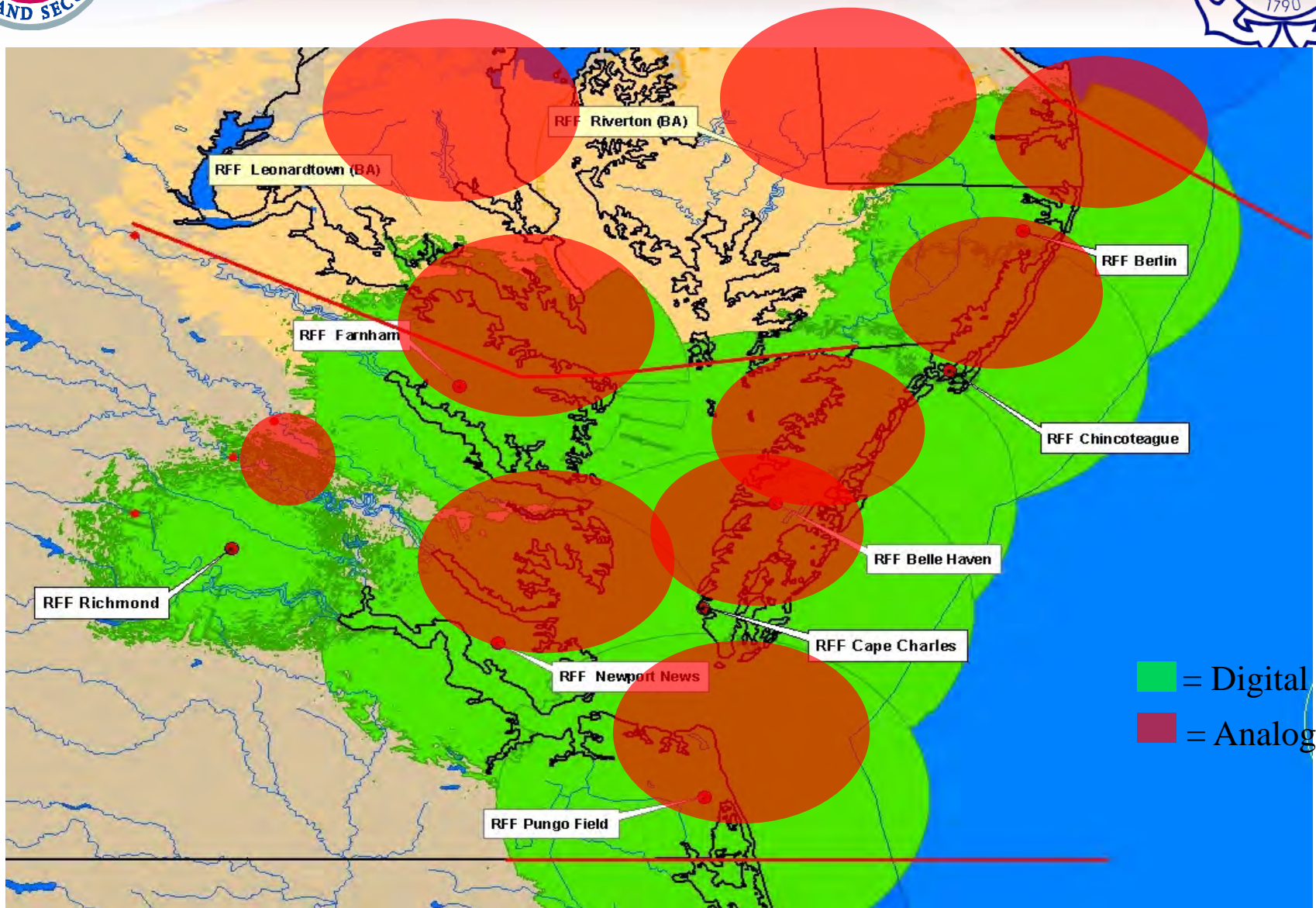
# R21 Nationwide Coverage



SECTOR GUAM

SECTOR HONOLULU

SECTOR SAN JUAN

NOTE: Coverage rings are depicted for illustration purposes only

HOMEPORT
U.S. Department of Homeland Security
UNITED STATES COAST GUARD

| Missions | **Port Directory** | Library |

Port Directory

**SECTOR BALTIMORE** (05-37060)
2401 HAWKINS POINT RD
BALTIMORE, MD 21226
**Primary Phone:** (410) 576-2561
**Emergency Phone:** (410) 576-2693
**Fax Number:** (410) 576-2575
**Rescue 21 VHF DSC MMSI Number:** 003669961
**URL:** http://www.uscg.mil/d5/sectBaltimore/
**Quick Link** http://homeport.uscg.mil/baltimore
Contact Us

Select Coast Guard Unit: BALTIMORE

# http://homeport.uscg.mil
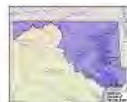
National Response Center Number: 800-424-8802 - Contact the NRC for oil spills, hazmat releases, and America's Waterway Watch.

**News and Events**
**News and Events**
- Port Wide Industry Day 2008
- Small Passenger Vessel Industry Day 2008

**Port Conditions**

**Coast Guard Prevention**
**Commercial Fishing**
- Commercial Fishing Safety Equipment Requirments
- Contact Information

**Container Inspections**
- Contact Information
- Freight and Tank Container Inspection Checklist
- International Convention for Safe Containers (CSC) Circular 134

**Domestic Vessel Inspection**
- Port Security Advisory (8-09)
- Port Security Advisory (9-09)
- MARITIME SAFETY & SECURITY BULLETIN 35-09
- Contact Information
- Small Passenger Vessel Annual Check List

more...

**Drug And Alcohol Program**
- Drug and Alchohol Program Inspection Guidelines and Checklist

**Facility Inspections**
- MARITIME SAFETY & SECURITY BULLETIN 30-10
- MARITMITE SAFETY & SECURITY BULLETIN 31-10
- 2010 Port Wide Industry Day Agenda
- Contact information
- MARITIME SAFETY & SECURITY BULLETIN 08-10

more...

**COTP MARSEC Level**
**COTP MARSEC Level**

MARSEC LEVEL
1  2  3
SIGNIFICANT RISK

COTP Baltimore is presently at MARSEC Level 1. 9 Oct 08.

**Port Status Information**
**Port Status Information**

**BALTIMORE Port Status Information**

| Port | Status | Comments | Last Changed |
|---|---|---|---|
| ALEXANDRIA | OPEN | | 09/01/2010 |
| ANNAPOLIS | OPEN | | 05/17/2010 |
| BALTIMORE | OPEN | | 05/17/2010 |
| CAMBRIDGE | OPEN | | 05/17/2010 |
| CHES/DEL CANAL WEST | OPEN | | 05/17/2010 |
| CHESAPEAKE BEACH | OPEN | | 05/17/2010 |
| CHESAPEAKE CITY | OPEN | | 05/17/2010 |
| CHESTERTOWN | OPEN | | 05/17/2010 |
| COVE POINT | OPEN | | 05/17/2010 |

**Safety and Security**
**Area Contingency Plan**

# Command & Control

## WatchKeeper

- **Capabilities will be developed/deployed in 3 segments:**
    - **Segment 1 – Information Management (Watchkeeper)**
    - **Segment 2 – Sensor Management**
    - **Segment 3 - Facilities**
- **Watchkeeper developed in 6 "spirals" of capability**



COP
R21
MISLE
MAGNET
SAROPS
Patrol/Boarding Maintenance Schedules
Port Partners
Information Networks
SANS
Radars/Cameras
NAIS
Environmental

## Today
### Operator is the __Integrator__

## Tomorrow
### Operator is the __Evaluator__

# *Interagency Ops Centers*
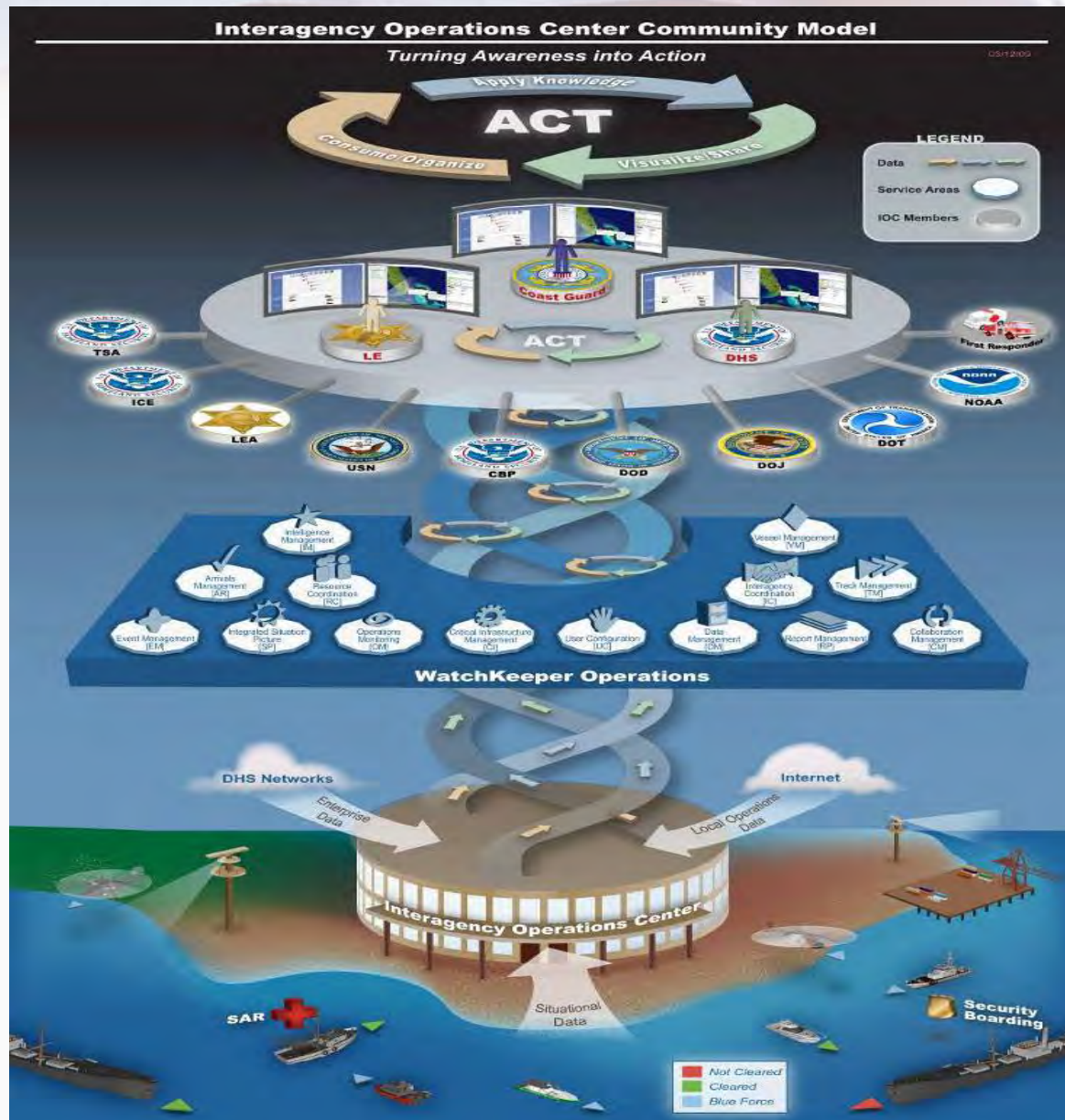
# *Concept*



Link Information with Operations

**Radar**  **Camera**

SBInet · COP · CBP · Seahawk · CG Data · Port Grants · Fused Intel · GMII · DoD · DHS S&T · GMSA

## Consume Data

- **Integrated IT Systems** – USCG and Interagency; i.e. MAGNet (SANS, MISLE, CWSS (NOAA, DoD, CBP, IRVMC, LRIT)
- **Sensors** (R21, NAIS, Radar, Cameras, Rad/Chem/Bio Hazard)
- **External Data** (Port Partners; Weather)
- **Capture Watch Events**

## Organize

- **Arrange** All Information in Context of the Users
- **Reuse** this Context Throughout IOCs
- **Single** Entry Data Point

## Apply

- **Business Rules**, Workflow, and Planning Inputs
- **Anomaly Detection** Alerts
- **Decision Support** and Knowledge Management
- **Analyze and Monitor** Vessel Behavior

## Share and Act

- **Actionable** Situation Awareness
- **Issue** and Monitor Tasking
- **Publish** Selected Info to Port Partners
- **Coordinate** Inter-Agency Operations
- **Automated Briefings**, Notifications, Logs, Reports

**WatchKeeper "State of the IOC" provides an executive level summary of port activities (36 hr window)**

WatchKeeper Portal and Geographic Display

# *Summary*

- **Rescue 21 is enhancing maritime safety & security throughout majority of continental U.S.**

- **Homeport is "one stop shop" for maritime safety & security information**

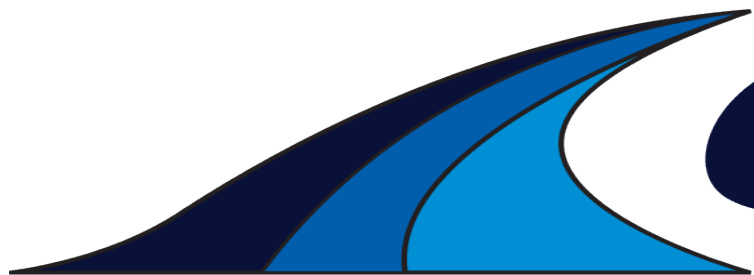- **Interagency Ops Centers provides enhanced opportunity for information sharing in Maritime Domain**

# *Questions?*

# Law and Policy

**Moderators**

**Mr. Dominick Donald**

**Mr. Robert Crane**

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**Discussion**

**"Transparency and Trust"-Watchwords for MDA Information Sharing…**

**BUT**

**Case studies of Ocean Policy Development and recently issued Executive Order on Piracy showed the contrary to be true!!**

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In both cases, industry felt it had NOT been adequately engaged…

Once group scratched this sore, a litany of other inequities were tabled:

Ballast water treatment

Low sulfur fuel requirements

Prohibitions on mariner shore leave

Inaction on the "Law of the Sea" Treaty

**Why is this important to this symposium and how does it relate to charting the course of the future of MDA information sharing?**

**Each of the 'real world' disappointments translates into industry skepticism and heightens the unwillingness on the part of industry to share further information when its input is not solicited or not considered and policies with adverse consequences proliferate.**

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" Axe to grind"

**The working group was *ADAMENT* in its frustration over the E.O. on Piracy, development review and publication, and pointed to it as a timely example of harm to the industry and, indeed, globally.**

**Result: Questioning the value of information sharing with U. S. Government**

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**Questions from Group 1**

1. What is the point of industry participating in discussions such as this conference when policy overrides that advice and damages the industry and global commerce?

2. The Executive Order on Somali piracy is ineffective, counter-productive, and issued against industry advice. It has raised costs for the maritime industry and damaged U.S. credibility on this issue, without the prospect of substantially affecting the pirates and their financiers. What can industry and the executive branch do to get the E.O. rescinded?

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**Questions from Group 1**

**3. The U.S.'s failure to ratify UNCLOS undermines its credibility in the international maritime arena and hampers its efforts to address a range of policy issues. What can industry and the executive branch do to get it ratified?**

**4. U.S. maritime initiatives have global maritime consequences which are then felt in the U.S., in terms of jobs lost, industries affected, and supply chains disrupted. The U.S. has in the past successfully used the I.M.O. as the forum for these initiatives, which, like ISPS, are vital to its interests. Recent examples of unilateral policy-making, such as the E.O. on Somali piracy, have not been successful. How can U.S. counter-piracy policy be returned to the IMO?**

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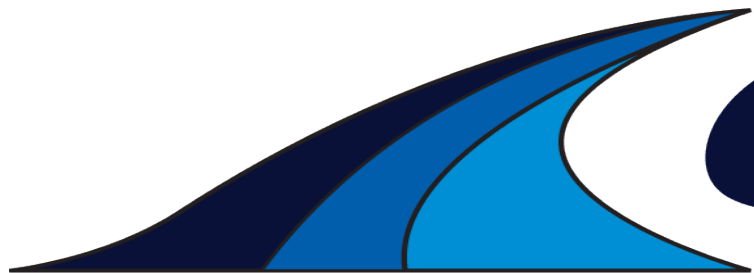
**Some prevailing themes:**

- **A desire for tangible, visible progress**

- **Focus on the right perspective**
  - **Context vs. content**
  - **Activities vs. data**
  - **Knowledge vs. information**

- **Employ existing capabilities innovatively**
  - **Google**
  - **Commercial satellites**
  - **LexisNexis**

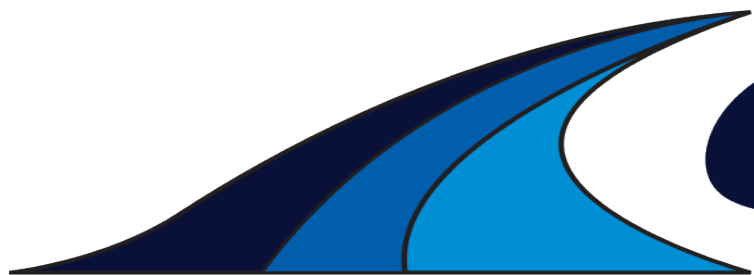*"Charting the Course For MDA"*
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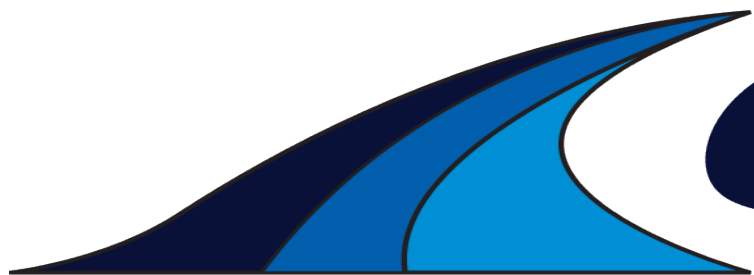
**Themes (cont.):**

• **Engaging industry/fostering partnerships globally**
  • **Trust**
  • **WIIFM**
  • **Inclusion**
  • **Collaboration**

• **Cross coordination among FED agencies on similar/synergistic efforts**
  • **NMIC Cloud concepts and the National Information Sharing Exchange (PM-ISE)**

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**1. In support of their strategic plans, DHS, DOD and DOT have published extensive lists of the key Science and Technology objectives the three departments feel must be achieved to accomplish their primary goals. As might be expected, the lists are quite different for each department due to very different missions.**
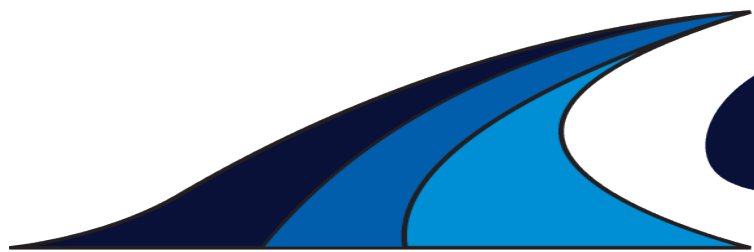
*From the perspective of Maritime Domain Awareness and Maritime Information sharing, which area of focus for Science and Technology does the panel feel is the most important:*

*• Needs/Requirements definition,*
*• Systems development/CONOPS, or*
*• Data acquisition/sensor development?*

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**2. Recent discussions have centered on the context of information as it becomes useful intelligence or knowledge. An example is the Christmas bomber incident in which a great deal of data was known about the individual, but it had not been coalesced into information that was actionable prior to the aircraft's arrival in Detroit. Currently the primary purpose of maritime intelligence would seem to be the identification of the "bad actors". Of the sectors and activities identified in the definition of Maritime Domain Awareness as those being of primary importance are people, cargo, vessels and other conveyances.**

**• *What does the panel feel is the highest priority of intelligence data or security information that is needed in the context of MDA – that on people, cargo or vessels?***

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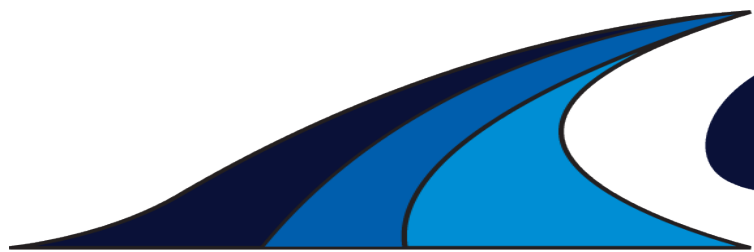
**3. There have been a number of government and commercial data information collection systems identified that could be the made available to the maritime community in support of MDA. Currently substantial hurdles exist that either prevent or are a disincentive to the open exchange of this data between public and private organizations, such as security classification, the business interests of commerce and industry and the competitive nature of business sensitive information.**

- *How might the government gain the trust of and/or incent private industry to collaborate on the development and implementation of a maritime information sharing tool?*

- *Does the panel feel that a government sponsored test bed would be an effective method to achieve improved information sharing?*

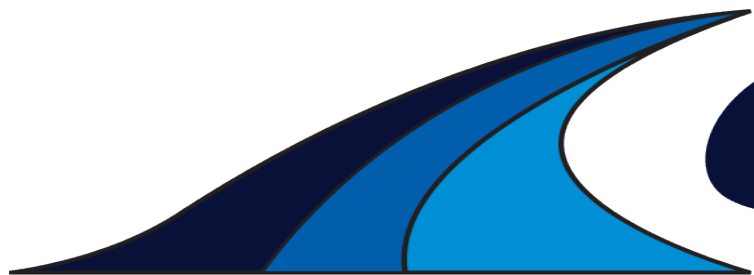*"Charting the Course For MDA"*
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**4. Unique approaches to maritime information sharing are being evaluated in Europe – Multi-National, Inter-Agency Information Sharing in the Extended Maritime Environment (MISA-EM) in the Mediterranean and a similar Swedish system employed in the Balkans – that are federated, regional, unclassified, subscription based, vetted and provide information to stakeholders on a contextual, access specific basis from a virtual internet based platform employing open source technology. Reports on the efficacy and effectiveness of the approaches are very promising.**

- *Does the panel see this or a similar approach as a possible model for a US national maritime information exchange that could provide access to both industry and global partners?*

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# Regional & Global Collaborative MDA

## Moderators

## Mr. Demetrio Veteri

## VADM Patrick Hebrard

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## Discussion

**Trust….Mutual respect for rules and responsibilities**

- **Cooperation**
- **Collaboration**
- **Coordination**

**Regional vs. Global**

- **Start w/ regional, build out**
- **Excellent examples**
- **Need next steps towards global**

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# Additional Inputs

- **Need International broker for MDA information (neutral, respected)**

- **Need basic information sharing "message" to all marine entities**

- **Information to International Navies; conducting Global Partnership Game**

- **Continue to develop regional MDA organizations**

- **Need to transform sea into controlled environment (i.e. aviation)**

**Questions from Group 3**

1. Do you have a global MDA roadmap ( a plan to get there)? If yes, where is it? If not, why not?
2. Based on the EU experience of a step by step process to build MDA, what are your initial steps to pursue global MDA?
3. Who will fund & build an International Web Portal for various MDA inputs?
4. An inventory of MDA systems in the U.S. is underway now. Is there an international inventory of regional MDA systems? If so, how can it be accessed?
5. Has NORAD completed an assessment of CANUS MDA progress? Is there any comparison to what has been done in other regions of the world?

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## Questions from Group 3 (cont.)

**6. Is the idea of Global MDA a reality anytime soon? How can we get there? What is the framework?**

**7. From the international perspective, who is the single contact point in the U.S. for international inputs and engagement?**

**8. Where is the single portal for industry to input all MDA data that is required? This includes customs information, immigration, cargo, advanced notice of arrival, etc.**

**9. If you want global MDA, what is being shared currently with other countries and the worldwide shipping industry?**

**10. What is the problem with information sharing?**

# Port Level Information Exchange

## Moderators

## Captain Mike Goldsmith

## Ms Wendy Walsh

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- **Government and industry express real and perceived needs for classification of MDA information exchange**
  - **Tear line requirements, law enforcement sensitive, commercially sensitive classifications**
    - **Can delay or block actionable information from getting to those who could use it to provide risk mitigation value**
- **New Executive Order has been promulgated to facilitate transfer of classified information**
- **New technology exists for a rapid disaggregation of information below the tear line**
- **With the E.O. as a catalyst, how quickly could classification problem be lessened?**

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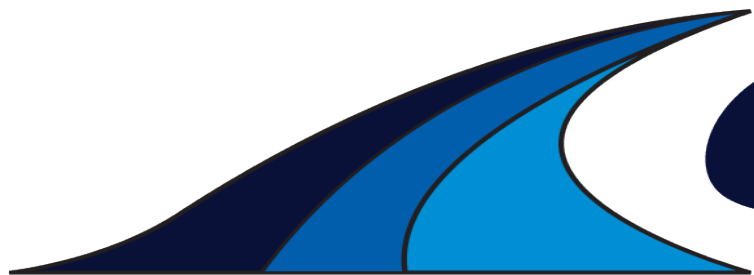
- **The multitude of information sharing vehicles detracts from information sharing and acting on information at the local level**
  - **Joint Terrorism Task Forces**
  - **Fusion Centers**
  - **Area Maritime Security Committees**
  - **Joint Harbor Operation Centers**
  - **Integrated Operation Centers**
  - **Local work-arounds**
- **Would you support merging elements of JTTFs and Fusion Centers, from the government side; explore establishment of a maritime industry ISAC; and more JHOC-type organizations for a more singular information sharing entity?**

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- **Social networks are emerging at local levels**
  - Exchange information more rapidly with those one trusts
  - Express information needs of each party
- **More participants of these networks are comfortable taking advantage of the potential offered by the internet and its components, bypassing traditional information sharing systems**
  - However, some of these networks are one transfer away from losing their value
- **What can be done to formalize this reality and be prepared to take advantage of the technology that supports this, given that future users are already there?**

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1. **Both partners in the MDA process (government and industry) are seeking incentives that could be provided to enhance information sharing participation**

2. **Who in government that could integrate incentives into the information sharing system should be told about what might be valuable to both stakeholder sides?**

3. **Who could provide a menu of available incentives to stakeholders?**

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4. Would you support the establishment of a group to seriously address the MDA issues that have been raised at this year's GMISS conference, many of which were the same as previous GMISS conferences—that includes all the relevant stakeholders from both industry and government?

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Candice Wright
Port Liaison Detective
Long Beach Police Department

# PROMOTING COLLABORATION & INFORMATION SHARING BETWEEN LOCAL MARITIME STAKEHOLDERS

# CHDS

- Conducted research over 18 month period
  - Intelligence sharing
  - Public/Private collaboration programs
  - Maritime industry
- Polled LA/LB Industry partners
- Pilot program
- MIST underscored research conclusions

# Challenges

- Complex maritime environment
- No central intelligence dissemination
- Classification issues
- Intelligence requirement gaps
- Conflicting goals and incentives

# Challenges

- Lack of SOP for reporting information
- Distrust
- Regulatory concerns
- No systemic program to exchange information
- Personalities
- Industry buy in

# Solution

- Create a robust information sharing and intelligence dissemination cyber network
- Partner with industry
  - Training
  - Establish mutual understanding of needs

# Forging Ahead

Los Angeles Police Department

Long Beach Police Department

Federal Bureau of Investigation

# LA/LB Port Efforts

- Regional Public Private Information Communication System (RPPICS)
  - Sector workspaces
- FBI Infrastructure Liaison Officer (ILO)
  - Training
  - Intelligence dissemination
- Groove platform
  - Cost effective
  - User friendly

# What Can Industry Do?

- Experts in respective industry
- Be good consumers of intelligence
- Inform intelligence providers of your needs
- Reach out to local law enforcement
- Consistent point of contact
- Get involved

# What Can Intelligence Providers Do?

- Consider industry needs
- Intelligence requirements
- Build good customer relations
- Consistency
- Responsive
- Understand industry intricacy's
- Train partners

# LAW ENFORCEMENT NETWORK

# SEACOP

# SEACOP

- eaport
- nvironment
- wareness
- ommon
- perating
- Picture

# SEACOP

- Port Information *Exchange* between Law Enforcement Agencies
- Information on this system is considered "*Law Enforcement Sensitive*"
- Goal is to have a common operating picture and situational awareness throughout the LA/LB Port Complex

# Components

- Situational Awareness
  - Suspicious/Criminal Activity
  - Activity affecting port operations/emergency response
- Intel Reports
- Calendar
- Sketch Pad
- Pictures

# Situational Awareness

- Photo takers
  - Critical infrastructure
    - Chemical facilities
    - Bridges
  - Security procedures
    - Ingress/Egress routes
    - Police/Fire locations
    - Camera positioning
    - Cell towers

- Surveillance water/land
  - Note taking
  - Pictures/video
  - Diagrams
- Probing Security
  - Asking about procedures
  - Inquiry of facility operations

# Situational Awareness

- Subjects loitering f/o facilities w/o reason
- Photo contests
- Labor strikes

- Bridge/Road Closures
- Protests
- Suspicious Vessels

# Situational Awareness Illegal Activity

- ▣ Trespassers
  - ▪ Any breech of security on a facility
    - ▫ Subjects hiding in truck cabs if no plausible story
    - ▫ Entry using false/fraudulent ID
    - ▫ Forced entry

- ▣ Unlawful diving/fishing
  - ▪ Subjects lack proper gear
  - ▪ Conducting surveillance
  - ▪ Found in restricted area
- ▣ Thefts
  - ▪ Rail lines/containers
- ▣ Bomb threats
- ▣ Threats to subjects working in port

# Sit Rep Entry

- New entry
  - Go to "New Topic", Left click
  - Enter a heading to include
    - Date
    - Location
    - Brief Description
- To Respond
  - Go to "Response"
    - Start typing
    - Click save and close

# Entry Layout

- Header
  - May 3, 2009-Subject Detained for Illegal Diving
- Reporting Agency: Per Long Beach Port Security Unit
- Narrative: Subject was detained by Long Beach Police at Berth 31 for diving in an unauthorized area.  Subject stated he was just seeing how deep the area was.
- Action: Subject was run through local databases, no wants..JTTF called, ran name; no hits.  Subject was cited and released.
- Subject information: John Doe. MW 12/1/1968.  Address ; 1224 Long Beach.
- Follow up: Information was forwarded to JTTF.  For information contact CT 6

# Intelligence Reports

- DHS Daily Report

- MLA Highlights –FBI

- CG OP Summary

- LBPD Weekly

- NYPD Harbor Report

- JRIC Daily

# Intelligence Report Entry

- Go to Intel Reports
  - Click on appropriate folder or create a new one
    - Click on "add file"

# Calendar Entries

- Maritime Conferences
- Joint Meetings/Training
- Exercises
- Anything affecting port operations
- Dignitary Visits
- Major events i.e, Grand Prix

# Pictures

- Suspect Pictures
- Facility Layouts
- Bridges
- Suspicious Devices
- Stolen Vessels

# SketchPad

- Ability to assist in joint planning /operations
- Upload documents/photos

# Questions?

Candice Wright (LBPD)

562-572-7211

Candice.Wright@longbeach.gov